

New York City
Transit Authority
REPORTS FILE

Annual Report

1962—1963



THE NEW YORK CITY TRANSIT AUTHORITY

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THE NEW YORK CITY TRANSIT AUTHORITY

Annual Report

FOR THE YEAR ENDING JUNE 30, 1963 AND

THE TEN YEARS July 1, 1953—June 30, 1963

Submitted in accordance with Sections 1213 and 2500 of the Public Authorities Law to:

THE HON. NELSON A. ROCKEFELLER
Governor

THE HON. ARTHUR LEVITT
Comptroller

THE HON. ELISHA T. BARRETT
Chairman, Senate Finance Committee

THE HON. FRED W. PRELLER
Chairman, Assembly Ways and Means Committee
OF THE STATE OF NEW YORK

THE HON. ROBERT F. WAGNER
Mayor

THE HON. ABRAHAM D. BEAME
Comptroller

THE HON. PAUL R. SCREVANE
President of the Council

THE HON. EDWARD R. DUDLEY
President of the Borough of Manhattan

THE HON. JOSEPH F. PERICONI
President of the Borough of The Bronx

THE HON. ABE STARK
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THE HON. MARIO J. CARIELLO
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OF THE CITY OF NEW YORK

JOSEPH E. O'GRADY
Chairman

JOHN J. GILHOOLEY
Member

DANIEL T. SCANNELL
Member

OF THE NEW YORK CITY
TRANSIT AUTHORITY

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Introduction

JUNE 30, 1963 marked the end of the first ten years of operation of New York City's subway and surface transit facilities by the New York City Transit Authority under the Public Authorities Law.

That these facilities are vital to the City's life and growth is demonstrated by the magnitude of the daily task accomplished: the movement of six million passengers to and from work, school, shopping, and their social, cultural and other pursuits.

The acquisition and construction costs of these facilities exceeded two and one half billion dollars. To replace them, at today's prices, would cost in excess of seven billion dollars.

In 1953, prior to the passage of the Public Authorities Law, the transit system was deteriorating. This deterioration was caused by war time labor and material shortages; by labor problems, and by decreasing revenues, with a consequent shortage of funds for a proper standard of maintenance. The Board of Transportation's operating deficits were being met by the

City of New York, with an increasingly serious effect on the City's operating budget.

It was under these conditions that the New York City Transit Authority was established by the New York State Legislature and came into being on June 15, 1953. The ensuing ten years were a period of trial, of hard work and high accomplishment. This was a period of critical review of old policies and trial of many new ideas which were then adopted or rejected on the basis of practical results in the hard testing ground of daily operation. Major emphasis was placed on improving the efficiency of operating procedures and the rehabilitation and modernization of existing facilities. It was a period of negotiation and cooperation between management and labor. It was a period in which public confidence in its transit system was renewed. It was the first ten years of the fifteen-cent fare.

This annual report for fiscal 1962-63 is an appropriate vehicle for a review of New York City's transit activities over that period of time.

A Brief History—1868 to 1953

In the beginning New York City's transit facilities were operated by private interests.

The first elevated operation started in 1868 on Ninth Avenue in Manhattan, running from the Battery to 21st Street. By 1875 the Second, Third and Sixth Avenue elevated lines were operating and were eventually extended to Harlem and The Bronx.

The first elevated line in Brooklyn, the Lexington Avenue Line, started in 1881. Other elevated lines soon followed in that borough.

Trolley cars, drawing their motive power from electricity, appeared in Brooklyn in 1887 and eight years later in Manhattan, to spell the beginning of the end of the horse-drawn streetcar.

None of these, however, completely answered the City's transportation needs. As early as the Civil War

period, underground transit was urged as the real solution.

The City recognized the need and its responsibility to aid in finding a solution by providing the funds for the first and all subsequent subway construction. Construction of the first subway was started in 1900 and service was inaugurated by the Interborough Rapid Transit Company (IRT) under lease from the City, on October 27, 1904. The line ran north from City Hall via Lafayette Street and Fourth Avenue, to 42nd Street, across to Broadway and up to 145th Street, a distance of eight and a half miles, serving both the east and west sides of Manhattan.

The success of this operation encouraged the building of extensions to the upper west side and The Bronx, and across the East River to Brooklyn. Later

FIRST HORSE CAR

Number 1 on the Brooklyn Rapid Transit Company's roster, built in 1868 and operated out of its car barn at 20th Street and Prospect Park West, Brooklyn.



extensions brought the subway to Queens and the further reaches of Brooklyn and The Bronx.

Meanwhile, the Brooklyn Rapid Transit Company, which operated trolleys and elevated lines in Brooklyn, reorganized as the Brooklyn Manhattan Transit Company (BMT) and entered an agreement with the City for another extensive system of subway lines. The first of these, the Fourth Avenue and Sea Beach Lines, opened on September 14, 1917, and others soon were running across Brooklyn to Manhattan and thence to Queens.

In 1921 the New York State Transit Commission was created to regulate the fares, service, and safety standards of the IRT, the BMT and the private bus lines.

In 1924 the Board of Transportation was established. It consisted of three full-time paid members appointed by the Mayor of the City of New York. Its initial purpose was the construction of a third subway system. Construction started on March 14, 1925. The first section, from Chambers Street to 207th Street, Manhattan, started carrying passengers on September 10, 1932, and was operated by the Board of Transportation, since satisfactory leasing terms with prospective private operators could not be reached. The City thus became a transit operator. The new system, the IND, was extended and by 1940 served Brooklyn, The Bronx and Queens.

In 1940 the City purchased the interests of the owners of the IRT and BMT Systems for \$317,000,000 and the Board of Transportation took over their operation. With this unification of the rapid transit lines under City ownership and operation, the regulatory functions of the Transit Commission were drastically

curtailed, and in 1943 its activities were terminated.

In 1947 the City acquired all the bus lines in Staten Island, about half of the privately operated lines in Queens, and five lines in Manhattan. The surface operation was a costly conglomeration of trolley cars and trolley coaches, gasoline and diesel buses, many obsolete and in need of replacement.

During World War II, the New York City Transit System showed an operating surplus on the five-cent fare. Gasoline was rationed and auto riders had to abandon their cars for subway and bus travel. Business boomed as factories worked "around the clock". Basic materials were in short supply for civilian use so that transit repairs were kept at a minimum, commensurate with safety. These factors raised operating revenues and reduced maintenance costs to produce operating surpluses—but caused future problems of deferred maintenance and obsolescence.

In 1946 the transit picture changed. Costs rose and profits turned to losses. To secure needed revenues, the fare was raised in 1948 to ten cents on the subways and elevateds, and to seven cents on the surface lines. This produced a revenue surplus for just one year. In 1950 a deficit again developed and a uniform ten-cent fare was established in 1951 on both the rapid transit and surface lines.

But operating deficits continued to mount and public dissatisfaction with the transit system grew. The operating deficits, which were paid by the City, had become a mounting burden on the City's budget. Plant and equipment were deteriorating. Train schedules were difficult to maintain. Labor relations reached a critical stage. Archaic methods, loose organization and inefficiencies prevailed.

The Ten Years—July 1, 1953 to June 30, 1963

A succession of crises led, in 1953, to the creation of the New York City Transit Authority by the Legislature. The Authority, a five-member unpaid board, was required to operate the transit system on a self-sustaining basis.

Two members of the original five member Authority, Hugh J. Casey and Henry K. Norton were named by the Governor. Two, William G. Fullen and Harris J. Klein were named by the Mayor. Douglas M. Moffat was selected by these four.

These gentlemen engaged in their usual occupations while carrying the added burden of this new operation. They functioned as a board of directors, meeting once a week and leaving the day-to-day direction of the transit system to the executive director and general manager. This proved to be a difficult arrangement when policy matters demanded greater attention than could be afforded by a weekly meeting.

Acting under the legal mandate of a self-sustaining operation the Authority increased the fare from 10 to 15 cents in July, 1953. This eased many of the financial problems. But labor problems became more serious. The difficulties in solving them, and the fact that a part-time unpaid Authority could not be expected to give the complex transit situation the long hours of attention that were necessary each day, emphasized the need for a different managerial arrangement. Political differences among the Authority members contributed to the need for change.

In 1955 the Legislature authorized the replacement of the five-member part-time unpaid Authority with a three-member full-time paid board, one member appointed by the Governor, one appointed by the Mayor, and a third, the Chairman, chosen by the other two.

The first three members of the Authority were the late Chairman Charles L. Patterson, a former railroad executive; Joseph E. O'Grady, a lawyer and labor relations expert, and E. Vincent Curtayne, a lawyer and banking executive. Joseph F. Periconi, a lawyer, later succeeded Mr. Curtayne.

The present Authority consists of Mr. O'Grady as Chairman; John J. Gilhoolie, a lawyer and former United States Assistant Secretary of Labor, and Daniel T. Scannell, a lawyer and former general counsel of the Transit Authority.



Joseph E. O'Grady has been Chairman of the New York City Transit Authority since February 4, 1963, filling the post left vacant by the death of former Chairman Charles L. Patterson. He was a member of the Authority from 1955 to 1962. In the interim he served as a Justice of the Court of Special Sessions. Prior to 1955, Mr. O'Grady was engaged in the practice of the law and served as the first Commissioner of the Department of Labor of the City of New York.

In the two years of its life, the original Authority undertook a considerable amount of fruitful exploration in the problems of the transit system.

A businesslike approach to the solution of these problems was introduced. Early in 1954 the Authority proposed a capital program of projects with a specific order of priority. It stressed the need for a major rehabilitation of older parts of the system and the replacement of over-age cars as well as the construction of new facilities. The need for these projects was so great that funds from a special authorization of \$500,000,000 in city borrowing power outside the constitutional debt limit was used by the City to finance them. Before the Authority was created consideration had been given to the construction with this money of a new trunk line on Second Avenue in Manhattan, but rehabilitating the older sections and equipment of the existing system was now considered of far greater urgency.

The inception in 1955 of the full-time Authority brought major changes in the administration of the transit system. Each of the three members accepted primary responsibility for certain Authority functions. One took on accounting, financial and legal matters; another became responsible for labor, personnel and public relations, and the third dealt with operations and engineering. However, decisions in all matters of importance have been unanimous.

One of the first things the new Authority did was to stabilize its employee relations. In the four preceding years, work stoppages and slowdowns had occurred on 16 occasions, and management and labor regarded each other with suspicion. Today the Authority has bargaining agreements with 14 employee organizations. Labor policies have been established that provide for decent wages, health and hospital insurance plans and generous vacation, holiday, and sick leave allowances. Except for brief stoppages in 1956 and 1957 by an insurgent motormen's organization involved in a jurisdictional dispute with the Transport Workers Union, the Authority's labor relations have been stable and peaceful.

Steps were taken to win more passengers and increase efficiency and productivity. Many maintenance activities previously carried on manually were mechanized and made easier. Unnecessary jobs were eliminated. New equipment was obtained with capital budget funds supplied by the City and old facilities were modernized. Faster service with new equipment was instituted. Delays due to breakdowns were reduced. An intensive cleaning program was instituted. The transit police force was enlarged to give better protection to the riding public.

When the Authority took office it found serious inadequacies in its equipment. About 50% of its rapid transit cars were 35 years and older. It has since replaced most of its oldest cars and rehabilitated 1,300 other cars. Transit Authority revenue bonds in addition to the capital budget funds of the City have been used for new car purchases.

The signal systems on the IRT and BMT, parts of which had not been changed since the original installations prior to 1918, were redesigned and modernized to permit high speed operation of the new cars with a maximum of riding safety.

Platform extensions now nearing completion on the IRT have already permitted the operation of longer

trains on the east and west side locals and on the Flushing Line. Work is starting on BMT stations. This is the quickest and cheapest way of increasing the capacity of the existing lines.

Worn and electrically inadequate contact rails are being replaced for the greater power needs of the new cars.

New fluorescent lighting was installed on most subway stations.

Public address systems were placed on important stations.

New elevators and escalators replaced the old and smaller facilities in the deeper and busier parts of subways and elevateds.

An automated shuttle train was operated between the Grand Central and Times Square Stations, attracting world wide interest.



John J. Gilhooley was appointed by Governor Nelson A. Rockefeller as a member of the New York City Transit Authority on January 31, 1962. He was formerly a partner in the law firm of Lowenstein, Pücher, Hotchkiss, Amann and Parr. Mr. Gilhooley served as United States Assistant Secretary of Labor in the Eisenhower administration.

Nearing completion is the \$100,000,000 DeKalb Avenue-Chrysler Street-Sixth Avenue complex that will enable BMT trains, originating in Brooklyn and Queens, to travel over the Manhattan and Williams-

burgh Bridges to a junction with IND lines on the lower east side of Manhattan. This will add a third more service. A total of 54 extra rush hour trains will be able to carry more than 90,000 additional passengers daily between Brooklyn and midtown Manhattan.



Daniel T. Scannell was appointed a member of the New York City Transit Authority by Mayor Robert F. Wagner on August 14, 1962. He had been the Authority's General Counsel since 1955. Prior to that he was Executive Assistant Corporation Counsel in the Law Department of the City of New York.

IND service was extended from Euclid Avenue to Lefferts Boulevard in Queens and through service was instituted to the IRT Dyre Avenue Line in The Bronx. The Rockaway Line was opened in 1956. Service was discontinued on the Third Avenue elevated south of 149th Street.

In 1953 the physical plant and rolling stock of the surface lines were also in critical condition. The Authority adopted a policy of standardization to reduce costs and to simplify maintenance and operation. By 1956 all trolley cars and gasoline buses were replaced by diesel powered vehicles. By 1960 the last of the trolley coaches were replaced. At this writing, out of a fleet of 2,200 buses, about 1,800 are less than 7 years old.

New shops and garages were constructed and older ones modernized or closed. The latest and best in shop equipment was installed.

Under the lease agreement with the City all improvements and additions to its transit properties, including rolling stock, are chargeable to the City's Capital Budget. Accordingly, in the last ten years the City of New York has appropriated a total of \$840 million and the Authority has used these funds for improvements, replacements and additions to plant, structure, rapid transit cars and surface buses. These appropriations are summarized in the appendix of this report.

New bus lines were instituted while others were re-routed for better operations and service. The surface lines, after a protracted period of deficit operations, started showing an operating surplus in 1959-60 which has persisted ever since.

The average hourly rate of pay rose by 52% from 1953 to 1963. Yet the total labor cost increased by only 20% through offsetting efficiencies which permitted a reduction in the labor force — without layoffs — from 43,700 employees in 1953 to 34,300 at the present time.

The pages which follow give many details on the activities listed above and some ideas of the Authority's future plans.

The past ten years have been successful. The Authority's legal mandate to operate a self-sustaining railroad, and its duty to the public to operate a safe and efficient railroad at the lowest possible fare have both been carried out, and the 15¢ fare maintained. This has been done while operations have been improved, and new and better equipment installed.

There are some who feel that transit operations should be entirely subsidized by the city. The Authority is of the opinion that if its operations did not have to be self-sustaining there would be less incentive for efficient management, and operating costs would rise. Others think that the fare should cover all costs. The Authority believes that the high fare this would engender would drive away passengers and the city's economy would suffer.

The record of the first ten years of the Transit Authority can be read with pride. It has been a period of solid accomplishment in the improvement of the system and service to the community. Much still remains to be done, but the record of the past gives great hope for the future.



NEWEST ADDITION TO THE CAR FLEET — 424 cars of this type are being delivered for operation on the IRT Flushing Line to the World's Fair

The Rapid Transit System

NEW YORK CITY'S rapid transit railroad ties together with cords of steel, the boroughs of Manhattan, The Bronx, Brooklyn and Queens. Its rails reach to the borders of the city via subway, elevated structures, open cuts and street level rights-of-way. To reach the Rockaway Peninsula its rails ride a five mile man-made sand embankment splitting the waters and salt marshes of Jamaica Bay. Six tracks arch across the East River on two of the city's magnificent suspension bridges, eighteen tunnel beneath its bed. Three tracks are carried over the Harlem, while seven go beneath that stream.

This is the most heavily traveled passenger railroad in the world with 4.7 million riders a day. Strung along 237 miles of route are 481 stations. Its 720 miles of track could extend from New York to Detroit. Its 6,600 cars are more than three times the number of passenger cars on the Pennsylvania Railroad, the nation's busiest longhaul rail carrier.

The electric power needed to run this rapid transit system could supply all the power needs of a city the size of Baltimore — two billion kilowatt hours a year. Alternating current is purchased, and to convert it to direct current for traction power in the third rails, the

system has 161 substations with an installed conversion capacity of 958,500 kilowatts.

The rapid transit system has been undergoing major changes in the past ten years. A railroad that was drifting towards obsolescence has now regained its rightful position as one of the most vital factors in New York City's continued growth.

The changes have touched every phase of the system from roadbed to rolling stock, from substations to passenger stations.

CARS

The change most apparent to the public is in the rolling stock. Ten years ago, about half of the car fleet was at least 35 years old. In 1953, the three rapid transit divisions had 6,041 subway and 654 elevated cars. Of the total on the BMT Lines, 500 subway cars were between 41 and 50 years old, and 245 elevated cars were between 45 and 60 years old. On the IRT Lines 1,901 cars on the subways were over age 35 and 409 elevated cars were between 41 and 50 years old. The IND cars having been purchased at the inception of that operation were barely more than 21 years old at that time.

The cars that dated from the first two decades of the



Figure 1 - Rapid Transit Cars by Age Groups as of June 30, 1953

century were, by 1953, unsightly and unreliable, breaking down often and running up high operating and maintenance costs. Many still had manually operated doors that were wasteful of both time and manpower.

The Transit Authority in its capital budget requests proposed a new car purchase program aimed at replacing all cars over 35 years old. The City lacked funds to meet this program completely, but large sums for new cars were provided.

In 1953, the Authority ordered 200 BMT-IND type cars which within three years, were all in service on the BMT's Jamaica-Broadway and Myrtle-Chambers lines. These cars incorporated, with refinements of their own, the important developments of the 1940's: improved performance, dynamic braking, roller bearings and fluorescent lighting.

The Authority contracted for 400 new IRT cars in 1954 to replace the old equipment on the Pelham Bay Line, which provides the local service on the East Side IRT. By mid-1957, when the replacement was complete, the running time between the Brooklyn Bridge and Pelham Bay was cut by six minutes as a result of cars that could start and stop more quickly.

New cars were next provided for the Broadway-Seventh Avenue, IRT line to provide high speed local service with eight-car trains between South Ferry in Manhattan and 242nd Street in The Bronx. Such trains began operating in February 1959, increasing local passenger capacity and speeding the service.

And so the new car replacement program continued through the decade with improvements in each successive series of cars. A major change came in 1959 with an order of 110 IRT cars. To reduce the initial price and future maintenance costs, and to cut weight, these cars were semi-permanently coupled two-car units with only one motorman's cab in each car instead of the usual two. This was not a new idea but an improvement of an old concept. The two-car units made it possible to eliminate the duplication of such equipment as air compressors, batteries, motor generators, and the motorman's cab equipment.

The most obvious changes were in the car interiors and the outside paint schemes. Colors were changed from somber hues to pastels inside, and to bold red and blue exteriors. Stainless steel was used for seat risers, hand holds and floor-to-ceiling stanchions. Ceiling sheets were made of baked enamel, and aluminum was used extensively in the interiors. Fiberglass seats replaced the cushioned varieties, primarily to thwart vandalism, but also to reduce car weight.

Automatic heating, under thermostatic control, had been introduced in 1950, but came into general use in 1953 with only minor changes since. Another change was the installation of part of the heating system over the fans to temper the air. The fans themselves were set into, rather than suspended from the ceiling. The flooring was changed from a dull cement-like composition to attractive and more easily maintained asphalt

tile. For the under-flooring, aluminum sheeting bonded to plywood reduced weight and costs. Floor strength was maintained as engineers calculated that the sharp spiked heel of a woman's shoe exerts a pressure equivalent to two tons per square inch.

Many other car improvements were less apparent. For example, circuit breakers were used instead of fuses in the motorman's cab. The third rail contact shoe, formerly made out of a single piece of cast iron, is now a two-piece steel unit so that only the contact pad, the portion that becomes worn, needs to be replaced. The use of transistorized car controls was increased. Vacuum tubes in public address system amplifiers were replaced by transistors.

Besides replacing outdated cars with new ones, old but still serviceable cars have been rehabilitated. On the BMT, 396 cars had new control units and headlights installed, the interiors repainted, and the seating rearranged to provide easier access to the end sections.

The traction motors of 700 IND cars between 20 and 25 years old were modified by the replacement of friction bearings with roller bearings in the armatures. The same work will be done on another 200 IND cars in the same age group.

Another modernization step has been the gradual elimination of waste packed journals, a primary cause of that railroad nuisance, the "hot box". A new type of lubricator is being substituted for the oil soaked wool packing in journals of cars built prior to 1948. This has been a gradual program accomplished in the

Authority's shops while car trucks were in for overhaul.

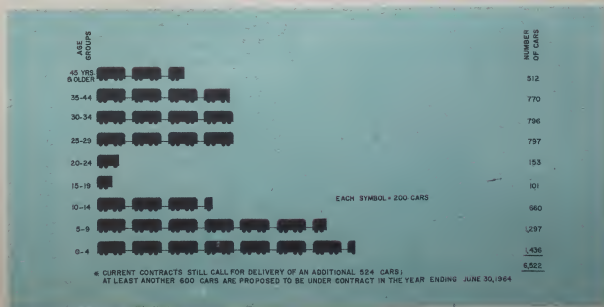
Sealed beam headlights are also being installed to help the motormen see better and to make men working on the tracks aware of oncoming trains.

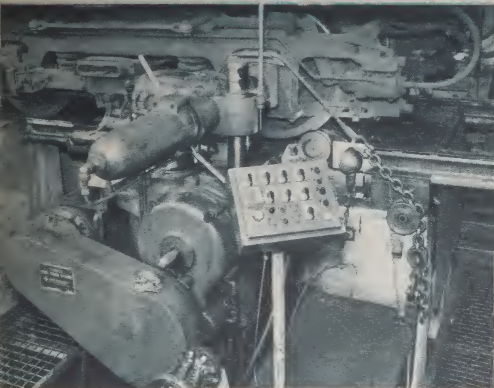
In all, since coming to office in 1953, the Transit Authority has spent or committed \$308,000,000 of capital funds provided by the City, for new subway cars. A total of 3,260 new cars have been delivered or are on order, and 2,916 old subway and elevated cars have been retired from service. On March 26, 1962 the Transit Authority ordered 540 IRT cars for \$60 million which had been provided in the City's 1962 Capital Budget. Up to that time, this was the largest single subway car contract in the system's history and one of the largest city contracts ever signed.

In 1962 the State Legislature amended the Public Authorities Law to allow the Transit Authority to sell up to \$92,000,000 of revenue bonds for the purchase of 724 additional new cars. A \$51 million bond issue was sold in November, 1962 to purchase 424 IRT cars which were subsequently ordered. Bonds for another \$38 million were sold under the same statute in August, 1963 and with this money the Authority ordered 300 BMT-IND stainless steel cars. Another 300 identical cars were contracted for simultaneously with funds provided for this purpose in the City's 1963-64 Capital Budget.

Figures I and II illustrate the relative age distribution of the rapid transit car fleet of 10 years ago and today.

Figure II
Rapid Transit Cars
by Age Groups
as of
June 30, 1963*





WHEEL TRUING MACHINE — One side of the new wheel truing equipment showing part of car truck and wheel being ground to proper contour.

SHOPS

To streamline the car maintenance operation and eliminate expensive duplication, the three main car repair shops were consolidated. The Coney Island shop at Avenue X and McDonald Avenue continued to service the BMT equipment, but the IRT shop at 147th Street and Lenox Avenue was closed early in 1961 and its operation was integrated with the IND's shop at 207th Street and Tenth Avenue, Manhattan. New shop equipment was installed at 207th Street and conversion of all electrical facilities from direct to alternating current was begun. A new lighting system of mercury vapor lamps was installed. The Coney Island facility is also being converted from direct to alternating current. New equipment at both base shops has brought about many maintenance improvements.

In 1958, three wheel-truing machines were installed, one for BMT cars at the Coney Island shop and two at

the Grand Concourse Inspection Shop where IND and IRT wheel work is done. These are precision tools that machine car wheels to proper contours while they are on the trucks, minimizing the time a car has to be kept out of service for this type of work.

New procedures and materials have streamlined the maintenance operation and produced better running cars. The use of a new synthetic plastic, instead of varnish, to insulate armatures has increased their service life. The use of glass tape instead of steel wire bands requires fewer man hours in rewinding armatures.

In 1959 a subway car washer was purchased and installed at the 207th Street Shop. For the first time, subway car exteriors were washed, with the 400 IND cars, built in 1948, being the first to go through. Another car washer has been installed at the Corona Yard where the 424 new two-tone blue and gray cars that will run to the World's Fair will be serviced. Car washers will also be installed at Coney Island and at the 239th Street IRT Yard and a program of washing the entire fleet will soon be under way. Car washing will be supplemented with a program of repainting the car exteriors.

Consolidation has taken place in the inspection barns as well. The 13 inspection sheds that existed ten years ago have been reduced to nine, three for each division: the Jamaica, Grand Concourse and Pitkin Avenue shops for the IND; 239th Street, 240th Street and Pelham Bay for the IRT, and the East New York, Corona and Coney Island shops for the BMT.

In the single typical year ending June 30, 1963 the Car Maintenance Department overhauled 23,512 car seats, 2,650 traction motors, 2,350 fan motors, and 1,422 car compressors.

STATIONS and SIGNALS

The Authority has centered much of its attention and its engineering ingenuity on increasing the capacity of a transit system which was already carrying, in peak rush hours, all the trains that it could handle. Its solution pointed to longer and faster trains, which in turn, required longer station platforms and the modernization and relocation of signals. Figure III depicts the Authority's program and progress on station platform lengthening. Figure IV shows its signal modernization program and the work completed to date.

Figure III - Platform Lengthening Program - New York City Rapid Transit System

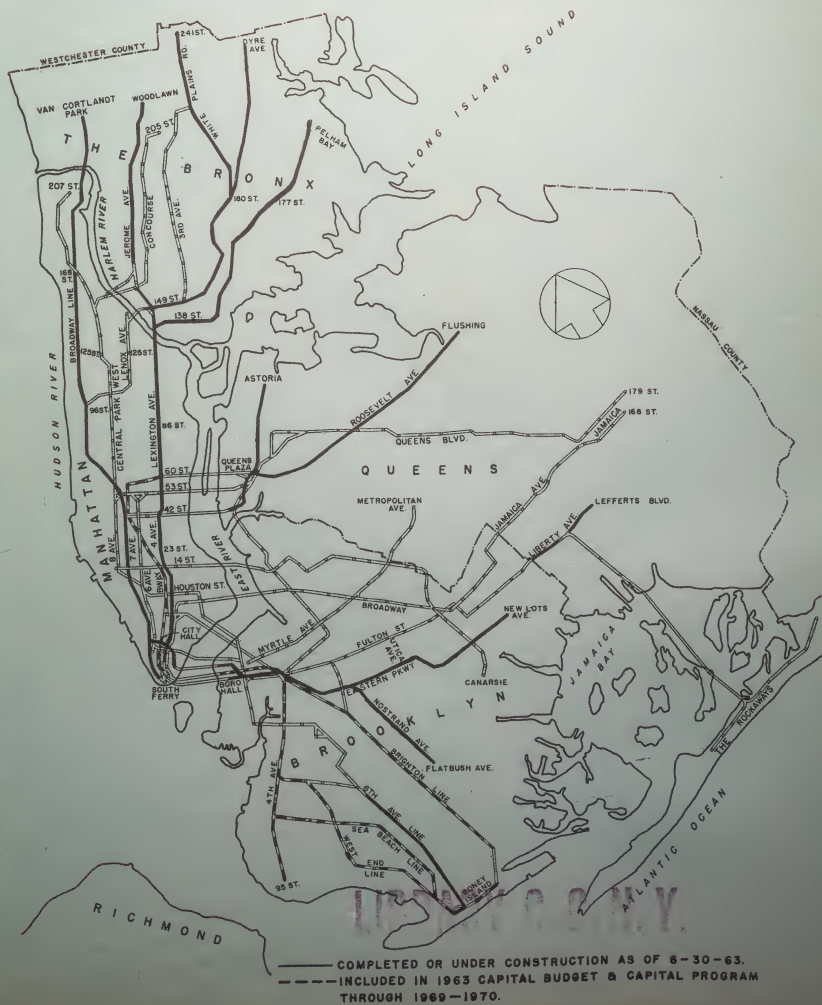
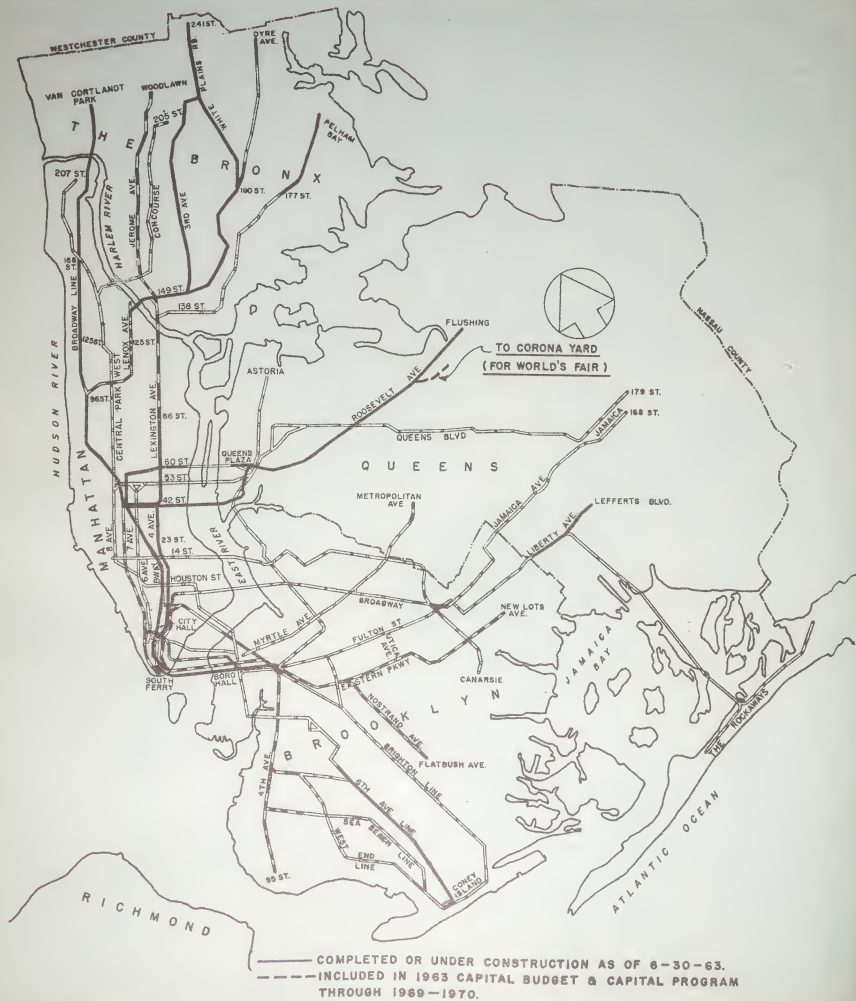


Figure IV • Modernization of Signals • New York City Rapid Transit System



The IRT Flushing Line is an early example. In 1953, the line carried a maximum of 30 trains an hour, with eight cars per train. In 1955, the Transit Authority began to modernize this line by installing the system's first centralized traffic control system, consolidating nine signal towers on the line to the present two. It also installed a selector system to enable a train automatically to select the proper track for its scheduled route. The consolidated signal system was in use by 1956 and the selector system by 1958. While the signal system was being improved on the Flushing Line, the platforms were lengthened to accommodate 11 car trains.

As a result, the Flushing Line is now able to run 36 trains an hour, more than any other line in the system. As riding on the line increased, trains were lengthened to nine cars each in 1954, to 10 cars on November 1, 1962, and will go to 11 cars next year for the World's Fair traffic.

Service to Queens was further improved in 1955 with completion of the \$23 million, two-track connection between the BMT 60th Street Tunnel and the IND Queens Boulevard Line at Queens Plaza. This made it possible for an additional local service to run from the heavily traveled IND Queens Boulevard Line through the 60th Street Tunnel to the BMT-Broadway Line in Manhattan.

Another integrated improvement was made on the Broadway-Seventh Avenue Line of the IRT Division. Here, signal modernization, platform lengthening and the replacement of old cars have wrought vast service changes. New signaling was installed from 34th Street to 96th Street, and work is under way on the rest of the line from 96th Street to Van Cortlandt Park. Gap fillers were installed at the platform edges of the South Ferry station. Station appearance was improved with fluorescent lighting. The bottleneck at the 96th Street junction with the Lenox Avenue Line was eliminated by rerouting the trains from Van Cortlandt Park to run local to South Ferry, while the trains from 145th Street and Lenox Avenue in Manhattan, and from Dyre Avenue and East 180th Street in the East Bronx, run express to Brooklyn. The lengths of local trains were increased from five to eight cars and will be increased to ten cars when additional cars are available and platform extensions are completed.

The result has been a 92 percent capacity increase on the west side locals. With the elimination of delays

at 96th Street and the increased speed of the new local trains it now takes only one minute longer to ride from Van Cortlandt Park to Chambers Street on the local than the same trip took on the old express service. Express runs with new cars are also faster. The success of the IRT Broadway-Seventh Avenue Line improvements is best seen in its passenger increase, one of the highest of any line in the City over the past ten years.

Similar improvement of the Lexington-Fourth Avenue Line, the system's busiest, began in 1957 and is still in progress. Modern signals have been installed from 86th Street to Bowling Green, and are being installed from Bowling Green to Atlantic Avenue, Brooklyn, from 86th Street north to 138th Street on the Pelham Bay Line and to 149th Street on the Jerome-Woodlawn Line. Extension of the station platforms to 525 feet to accommodate 10 car trains is nearly completed. The Brooklyn Bridge Station was completely rebuilt. It was straightened, extended to the north and provided with new entrances.

The biggest single project on this line was the construction of a \$7.6 million lower level express station at 59th Street, the interchange between the IRT Lexington Avenue Line and the Broadway BMT Line which went into service on November 15, 1962. The new station provides another local-express transfer point to relieve congestion at the nearby Grand Central Station, the second busiest station on the system. It also makes for easier transfer to the BMT Line for passengers bound for the west side of Manhattan.

East side local trains were lengthened from 8 to 9 cars on September 4, 1962 and will be increased to 10 cars before the end of 1963. Also by the end of 1963 all the remaining old cars on the IRT, which are now on the east side lines will have been replaced.

Modern signaling and longer station platforms are being installed on the BMT as well as the IRT. The entire BMT Broadway Line in Manhattan from Lexington Avenue to Whitehall Street is undergoing these changes. New signaling has been extended from the Manhattan Bridge, through the big DeKalb Avenue junction, to Pacific Street and Atlantic Avenue in Brooklyn, to Queens Plaza in Queens. Contracts have been let to extend platforms on the Brighton Line in Brooklyn. These platforms must be lengthened to 615 feet, 90 feet longer than the IRT, in order to accommodate trains made up of ten 60-foot cars of the



ON THE ROCKAWAY LINE—The Aqueduct Station, showing the ramp leading to the grandstand of the race track. The concrete platforms and walkways are typical of the type of construction going into the Authority's program of rehabilitation of its elevated stations.

new BMT-IND type, or nine of the old 67-foot BMT cars.

Ultimately, the Authority plans to run 10-car trains on all IRT main lines, 11-car trains on the Flushing Line, and 10-car trains on the BMT. The IND was built originally with platforms long enough to accommodate 10-car trains. By the end of the fiscal year, \$30 million had been spent on the platform lengthening program.

Construction of platform extensions on the IRT Division was completed during the year at the following thirteen stations:

JEROME AVENUE LINE: 167th Street, 170th Street, Mt. Eden Avenue, 176th Street, Burnside Avenue, 183rd Street, Fordham Road, Kingsbridge Road, Bedford Park Boulevard, Moshulu Parkway, and Woodlawn.

WHITE PLAINS ROAD LINE: E. 238th Street, and E. 241st Street.

In addition the installation of Gap Fillers for the Grand Central platforms of the Lexington Avenue Line was completed.

Construction of platform extensions on the IRT Division continued throughout the year at the following stations:

LEXINGTON-4TH AVENUE LINE: Brooklyn Bridge, Bowling Green, Wall Street, Fulton Street, Canal Street, Spring Street, Bleecker Street, Astor Place, Grand Central, 51st Street, 68th Street, 77th Street, 86th Street, 96th Street, 103rd Street, 110th Street, 116th Street, 125th Street, 138th Street-Grand Concourse, and 149th Street-Grand Concourse.

WHITE PLAINS ROAD LINE: 149th Street-Grand Concourse, 149th Street (3rd Avenue), E. 180th Street, Bronx Park East, Pelham Parkway, Allerton Avenue, Burke Avenue, Gun Hill Road, E. 219th Street, E. 225th Street and E. 233rd Street.

PELHAM LINE: 3rd Avenue, Brook Avenue, Cypress Avenue, 143rd Street, E. 149th Street, Longwood Avenue, Hunts Point Avenue, Whitlock Avenue, Elder Avenue, Soundview Avenue, St. Lawrence Avenue, E. 177th Street, Castle Hill Avenue, Zerega Avenue, Westchester Square, Middletown Road, Buhr Avenue and Pelham Bay Park.

DYRE AVENUE LINE: Dyre Avenue, Baychester Avenue, Gun Hill Road, Pelham Parkway and Morris Park.

LEXINGTON AVENUE AND 7TH AVENUE LINE, BROOKLYN: Nevins Street and Atlantic Avenue stations.

LENOX AVENUE LINE: 110th Street, 116th Street, 125th Street and 135th Street.

BROADWAY-7TH AVENUE LINE: Wall Street, Fulton Street and Park Place.

BROOKLYN LINE: Clark Street, Borough Hall, Bergen Street, Grand Army Plaza, Eastern Parkway, Nostrand Avenue and Kingston Avenue.

NOSTRAND AVENUE LINE: President Street, Sterling Street, Winthrop Street, Church Avenue, Beverly Road, Newkirk Avenue and Flatbush Avenue.

Fluorescent lighting has been an important part of the modernization of the IRT and of the BMT. By the end of fiscal 1963, \$6.8 million had been spent for the fluorescent lights which replaced the incandescent lighting on all BMT and IRT, and many IND subway stations.

During the year fluorescent lighting strips above the platform edges were completed at the following eleven stations:

IRT DIVISION

LEXINGTON AVENUE LINE: 59th Street, Brooklyn Bridge, Canal Street, and Bleecker Street.

IND DIVISION

QUEENS LINE: Lexington Avenue.

6TH AVENUE LINE: 42nd Street.

8TH AVENUE LINE: 23rd Street, 34th Street, 42nd Street, 50th Street, and 59th Street.

As of June 30, 1963 similar installations were in progress at the following four stations:

IRT DIVISION

DYRE AVENUE LINE: Pelham Parkway, and Dyre Avenue.

FLUSHING LINE: Willets Point Boulevard.

IND DIVISION

CHRISTIE STREET CONNECTION: Grand Street.

This year, the \$8 million repainting program, which was begun in 1955, was practically completed. With the exception of 18 stations that are scheduled for repair work, all elevated structures and stations in the system were repainted in the eight-year period.

Perhaps even more important to the elevated system has been the replacement of wooden platforms with precast concrete platforms. The latter are fireproof, have longer life and need less maintenance. This program began in 1958. By June 30, 1963, about half of the elevated stations had concrete platforms and all are expected to be completed by 1968.

During the current fiscal year the replacement work was completed at the following stations:

CULVER LINE, IND DIVISION:

Ditmas Avenue, Avenue I, 22nd Avenue, Avenue N, Avenue P, Kings Highway, Avenue U, Avenue X and Van Sicklen Avenue.

Work is currently under way at the following stations:

FLUSHING LINE, IRT DIVISION:

52nd Street, 61st Street, 69th Street, 74th Street, 82nd Street, 90th Street, Junction Boulevard and 103rd Street.

Work started on the following:

ASTORIA LINE, BMT DIVISION:

39th Avenue, 36th Avenue, Broadway, 30th Avenue, Astoria Boulevard and Ditmars Boulevard stations.

Plans are in preparation for replacement of wooden platforms with pre-cast concrete at six stations on the BMT West End Line.

The ability to move passengers horizontally above and beneath the ground is of little value without the ability also to move them vertically between station platform and street level. Since coming to office, the Transit Authority has carried on a program to install high speed automatic elevators and double width escalators either as new facilities or as replacements for the old manually operated elevators and two-foot wide escalators. Among the more recent of such projects was the completion of four new escalators, which, supplemented by stairways, connect the new IRT express platform at Lexington Avenue and 59th Street with IRT local and BMT platforms. Escalator capacity was doubled at the Fifth Avenue station of the IND Queens Line by replacing the four narrow 2-foot escalators with new ones four feet wide.

New elevators have replaced old ones at the 168th Street, 181st Street, 191st Street and Clark Street stations on the rehabilitated IRT Broadway-Seventh Avenue Line. During the year work was completed on the installation of one elevator at the Court Street Station, BMT Broadway-4th Avenue Line, and of one elevator

at the Clark Street Station, IRT Broadway-7th Avenue Line. These installations complete the replacement of the old elevators at each of these stations.

At the close of the year construction was under way on four new 4-foot, two speed escalators to replace the existing two foot wide escalators at the 53rd Street and Lexington Avenue Stations of the IND Queens Line. Construction was begun on the installation of three new two speed escalators at the Times Square Station, IRT Flushing Line. Work continued on contracts for two elevators each at the 168th Street and 181st Street stations of the IRT Broadway-7th Avenue Line. One elevator at each station has been completed. All these elevators are to replace obsolete installations.

In all, during the ten years of the Authority's tenure, \$5.8 million have been spent on this kind of station improvement.

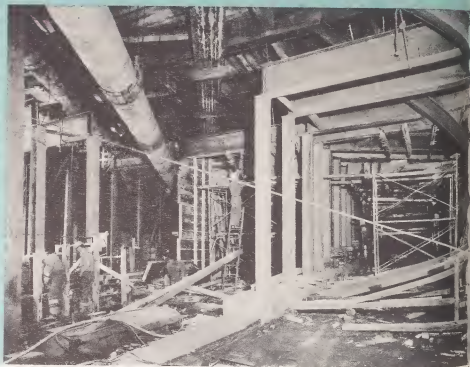
DEKALB AVE.-CHRYSTIE ST. CONNECTION AND SIXTH AVENUE TUNNELS

In January, 1957 work began on the first section of a long-term three part construction program that will be one of the most significant rapid transit developments in the city since the start of operation of the IND Subway in 1932. This is the project entitled: DeKalb Avenue Reconstruction, Chrystie Street Connection, and Sixth Avenue Tunnels. It is the implementation of a plan for eliminating the chronic train delays at DeKalb Avenue, increasing train capacity on the BMT by joining it with the IND Division at Chrystie Street and increasing IND capacity by building two additional tracks under Sixth Avenue from the West 4th Street Station to the 34th Street Station and north of 52nd Street to 58th Street. The three projects dovetail. Each depends on the other two. The rebuilt DeKalb Avenue junction will allow more BMT trains into Manhattan from Brooklyn. The overburdened BMT tracks in Manhattan cannot handle the extra traffic but the IND can. The connection beneath Chrystie Street will channel some of the BMT trains from the Manhattan and Williamsburgh Bridges to the IND Houston Street Line. The additional two-track tunnel beneath Sixth Avenue will accommodate this traffic uptown. The plan will permit increased service between Brooklyn and Manhattan and will also make it possible for BMT Jamaica trains from Queens, via the Williamsburgh Bridge, to be routed directly to Midtown Manhattan, via the IND Sixth Avenue Line.



SIXTH AVENUE TUNNEL — *Left, a section of the tunnel being cut through solid rock 80 feet beneath the surface of Sixth Avenue in Manhattan, as part of the DeKalb-Chrystie Street-Sixth Avenue project.*

CHRYSTIE STREET — *Below, subway construction in progress on the Chrystie Street connection.*



In the first stages of the project the six tracks through DeKalb Avenue Station were realigned to eliminate grade crossings and to speed service. New signals were installed. To complement the track work, the station was modernized with fluorescent lighting, new ventilation, a new north mezzanine and two four-foot wide escalators. This first stage of the project was finished last year.

The Chrystie Street Connection, which is expected to be in use by 1965, is the first piece of new subway to be built since the IND, and includes a new station at Grand Street. Work under two of the three structure contracts for this connection is completed, and work on

the third section, including the new station at Grand Street is about 80% completed. Installation of power equipment is almost entirely finished, and about 20% of the ventilation and drainage equipment for the three sections is installed. Contracts for station and tunnel lighting, for D.C. connections and for the installation of track and contact rails were delivered in June, 1963.

The final phase of the project is the deep double-track express tunnel to run beneath Sixth Avenue from West 9th to West 31st Streets. No stations will be constructed along this route initially, but provisions have been incorporated in the design of the tunnel to permit the addition of future lower level stations at 14th Street

DEKALB AVENUE STATION — Improvements made to the station area, including new fluorescent lighting, escalators, entrance controls and passageways, designed to improve traffic flow.



and at 23rd Street without undue disturbance to train operation. The construction of the first section of tunnel from West 9th Street to West 19th Street was started early in 1961 but work was halted by a water main break, and there were other delays, with the result that the work is now only 20% completed. The construction of the second section from West 19th Street to West 31st Street, started in the middle of 1961, proceeded on schedule, and is now over 60% completed.

At the northern end of the Sixth Avenue Line a short stretch of subway will be built between 52nd and 58th Streets so that trains can switch back at the end of that

line at a terminal station to be built at 57th Street. This contract is expected to be let by the end of 1963.

The entire project, DeKalb-Christie-Sixth Avenue, will be completed in 1967 at a total cost of nearly \$100 million. As a result service will improve on every major BMT line going through DeKalb Avenue with proportional increases for the Brighton, West End, Fourth Avenue and Sea Beach Lines. It will then be possible to accommodate an additional 52,000 passengers per hour on trains through DeKalb. For the first time, riders of the BMT Jamaica Line over the Williamsburgh Bridge will have a direct route to midtown Manhattan.

ROCKAWAY LINE

The City's rapid transit system grew in one burst by 12.7 route miles when the City acquired the Rockaway Line of the Long Island Railroad in 1952. This provided residents of the Rockaway peninsula with direct access to the rest of the transit system. To put this new route into operation, the Transit Authority refurbished the elevated structure and built two new stations on the Rockaway peninsula; built an earth embankment across Jamaica Bay with swing bridges over two deep water channels, and two new stations; installed new track, power and signal systems, and connected the Rockaway Line to the structure of the IND Liberty Avenue Line. Total cost, including payment to the Long Island Railroad, was \$56 million. Service to Rockaway Park on the western branch of the line and to the Wavecrest Station on the eastern branch began in June, 1956. It was extended to the new Mott Avenue station in Far Rockaway, the end of the eastern branch, in January 1958.

AQUEDUCT

A new service, and one heavily patronized, is the Aqueduct Special, an extra-fare express train run for the patrons of the Aqueduct Race Track. During the racing season, these IND trains leave from the 42nd Street and Eighth Avenue Station in the morning and run to Aqueduct with a stop only at Brooklyn's Hoyt-Schermerhorn Station. On Saturdays and holidays there are Specials returning from the track to 42nd Street and Eighth Avenue. The 50-cent ride is the fastest way to get to and from the race track. From the time the trains started running for the 1959 fall racing season, to the end of fiscal 1963, they have been used by 2.3 million riders.

DYRE AVENUE

In 1957, a connection was completed between the IRT White Plains Road line and the southern end of the Dyre Avenue line, which had been a part of the Boston and Westchester Railroad before its acquisition by the city in 1941. The link made possible through service to Dyre Avenue in the extreme northeast Bronx at a cost of \$3.3 million. Traffic on this line has been increasing rapidly as the area of the Bronx, which it serves, is building up.

ELEVATED LINES

Where possible, rapid transit services have been adjusted over the past ten years to conform to the City's changing traffic patterns. There were other improvements in service, new construction, new links between old lines, and the refurbishing of old, but still serviceable roadbeds and structures. On the other hand, obsolete lines were abandoned, tracks removed, and structures demolished. In 1954, a link was completed between the southern terminus of the IND Sixth Avenue line at Church Avenue in Brooklyn and the Ditmas Avenue junction of the old BMT Culver line. The section of the Culver Line from Ditmas to Stillwell Avenue in Coney Island was absorbed and served by the IND, which provided through service to upper Manhattan and The Bronx. Cost of the extension and the Culver Line rehabilitation was \$28.2 million.

In 1955 service was discontinued on the IRT Third Avenue elevated south of 149th Street and the structure was demolished. The subsequent tremendous surge of new office and residential building construction on Third Avenue has been one of the highlights of the redevelopment of midtown Manhattan.

In 1956 service ended on the old BMT Fulton Street elevated line between Rockaway Avenue, Brooklyn and Lefferts Boulevard, Queens, after a double-track ramp connection was built between the Fulton Street line of the IND and the Liberty Avenue line of the BMT, thus providing continuous IND service to Lefferts Boulevard. As part of this \$8 million project, the Liberty Avenue line was modernized with longer station platforms, new signals, new track, and additional power facilities.

MAINTENANCE OF WAY

The maintenance of track and structure is a phase of railroad activity little seen by the public. On the New York City Transit System, only the late night subway rider occasionally sees the track gangs who work mainly from midnight to dawn when traffic is light. These groups of nocturnal workers grind and replace rail, clean and tamp ballast, and search out track flaws. Machines have replaced men in many aspects of this work, and better techniques and equipment have lightened the continuous task of maintaining track and roadbed. During this year 7 miles of subway track and 7 1/4 miles of elevated track and deck were completely



AFTER THE RUSH HOUR — Nestled in the elbow of the Harlem River, the 207th Street Yard is aglow with lights as the cars on the lay-up tracks await the attention of the night time service crews.

renewed. In addition, 67 miles of rail were renewed, 60,000 crossties replaced, 37 miles of track raised and tamped, and 300 miles of rail were ground to remove surface imperfections and thus reduce the necessity for renewing rail.

One innovation in process is the use of double-length rail sections, formed by welding two standard 39 foot lengths, in the replacement of old running rail. While only 3,866 tons of this welded rail was installed in the last year, its continued and more widespread use will eventually save \$25,000 a year in reduced maintenance for fewer connecting joints. A quieter and smoother ride will be achieved as half the track-joints will be eliminated.

An experiment in process is the use of tieless track. The steel rail is held on rubber pads which lie directly on a concrete foundation. So far, this track is in test use on 2,700 feet of track, including one piece of the 42nd Street Shuttle and stretches of the IRT Lexington Avenue Line at the 33rd, 28th and 23rd Street Stations. It is being planned for other sections as it shows promise of improved riding qualities, less wear on cars, less noise, lower maintenance costs and easier cleaning.

Among the problems faced in recent years were track fires. These were brought under control with an intensified cleanup campaign to keep track-ways free of papers and grease, and with the use of fire retarding substances on wooden ties. The track fires, which oc-

cur mostly on elevated structures, have been reduced by more than half since 1959.

A more vivid phase of the cleanup campaign has been the use of the tunnel cleaner, a \$3,000 piece of apparatus carried on a flat car which went into service in 1961. It is run through the subway, spraying the tunnel walls with detergent and water; cleaning the greater portion of them for the first time since they were built. To date, 240 miles of subway walls and ceilings have been washed with this machine.

To further improve the roadbed cleanup program, the Authority has ordered a vacuum cleaner train, the first in the system, to remove paper, trash, and other debris thrown on the tracks. Final testing and acceptance of this machine is expected during the next year.

Snow on the tracks and third rail is troublesome on elevated, ground level and open cut sections of the right of way. For the past two years the Authority has been using four special snow cars equipped to blow away loose snow and to spray alcohol on third rails to prevent icing and consequent loss of power contacts.

Other new machines that have revolutionized the track maintenance operation have been introduced. One is the rail grinding train made up of four small cars carrying 96 carborundum grinding wheels, a diesel engine, four control cabs, and a locomotive with a spotter's cab. The train creeps along the tracks at two miles an hour, grinding corrugations from the rail



RAIL GRINDER—This unique piece of equipment saves worn rails by actually grinding away the rough spots and eliminates the necessity of replacing rails in many instances. The photo above shows the rail grinder in action on a stretch of tunnel track.



TRANSITION

Above, Third Avenue at 42nd Street showing the area's tremendous development since the removal of the old Third Avenue Elevated Line in 1955, at right.



heads. Before the Authority put the rail grinding train to use in 1959, rails had to be replaced when rough spots developed.

Another development has been the use of a special car with ultrasonic devices for detecting hidden cracks or other flaws in the rail and the rail joints. It is a more efficient means of locating rail flaws and reduces the need for visual inspection.

During the year the regular cyclical maintenance work on the structures and equipment of the system continued. The evident signs of this work were the painting of 6 miles of elevated structure and 18 stations. In the next year the IRT Flushing Line stations and structures will be painted. The program of rehabilitating old lighting and wiring systems on elevated stations continued with 19 stations completed during the year.

Less obvious but of equal importance was the installation of such devices as snow melting switchheaters to assure continuity of operation during heavy snow; high pressure rail lubricators to reduce rail and wheel wear and the squeal of trains going around curves, and shock resistant mountings on the signal equipment of elevated structures.

POWER

On August 1, 1959 the three power plants that provided electricity for the IRT and BMT lines were sold by the City to the Consolidated Edison Company of New York. The IND always purchased its power from the Edison Company.

The Transit Authority continues to operate and maintain the railroad's power distribution and conversion system. This old system, dating back to the initial operation of the subways in 1904, was not designed to meet the power needs of the new high acceleration cars and, in any event, should be replaced because of age and obsolescence. Also, more substations are needed, especially where power requirements have grown. As the initial phase of the substation modernization program for the IRT and BMT Divisions, the selection of sites and acquisition of property for the first six substations is under way. During the year 1963-64 it is planned to award contracts for the purchase and installation of two 3,000 kw rectifiers in each of these substations. The three IRT substations, at 72nd Street and Broadway, 110th Street and Lenox Avenue, and at 142nd Street and Lenox Avenue, Manhattan, will

be underground structures. The three BMT substations will be surface structures located at Van Sinderen and Linden Boulevard; at 63rd Street and 15th Avenue, Brooklyn and at 143rd Street and Jamaica Avenue, Queens.

It is proposed in future years to replace or add substations in successive steps, in the same general manner, to meet the new and existing power requirements of the system. The order of replacement will be such that those containing the oldest equipment will be retired first. Since the new stations will be designed for central control, the elimination of the old manually operated substations will substantially reduce the costs of operation. As the result of system studies now in progress the location and installed capacity of the new substations will eliminate the high concentration of electrical capacity which now prevails in many of the substations and will greatly reduce the lengths of power feeder cables.

A significant part of this program is the new 3,000 kw silicon rectifier in the Hammels substation of the Rockaway Line which was put on line in the past year. This is the first such rectifier on the transit system. If it meets expectations it will be the precursor of future similar installations.

The rapid transit system's development over the past ten years has been dramatic, but the future offers a chance to outdo the past. Some ideas were tried and proved impractical. Air-conditioning of subway cars was tested and failed. The city's trains carry such large crowds and make such frequent stops that the available air conditioning units are inadequate and installation, operating and maintenance costs are excessively high for the meager benefits realized.

Potentially, the most far-reaching experiment of all has been the automated train, installed on the IRT 42nd Street shuttle, and placed in passenger service early in 1962, the first time such a train had ever been used in regular revenue service by any railroad. It had its share of early troubles. For example, it carried such sensitive safety devices that its very operation was hindered. But the early "bugs" expected in all new developments were gradually eliminated, and, since going into operation, this train has successfully made 88,000 automatic shuttle trips, covering a distance of 39,000 miles. Most of its passengers neither know nor care that the train is under the control of electronic devices rather than a motorman.



TO THE WORLD'S FAIR AND SHEA STADIUM—Willets Point Station (center) on the IRT Flushing Line is being prepared to accommodate the throngs of transit passengers going to and from The World's Fair (lower right) and Shea Stadium (lower left) which will be completed in 1964 and house the New York Mets of the National Baseball League. The ramp leading to the World's Fair from the Willets Point Station can also be seen, running over the Authority's Flushing Garage and Corona Yard.

The Surface System

The Transit Authority's fleet of 2,251 diesel buses serves the boroughs of Manhattan, Brooklyn, Queens and Staten Island, operating over 121 routes on 538 miles of public streets. It is one of the world's largest urban surface transit systems. On an average week day the buses carry just under 1,500,000 passengers. By comparison, Greyhound Lines, the country's leading cross-country bus system, carries an estimated average of 274,000 passengers a day. The fleet operates 65,000,000 bus miles per year and is serviced at six depots in Brooklyn, two in Queens and one each in Manhattan and Staten Island. Major repairs, the rebuilding of engines, converters and other bus units, as well as the painting of two buses a day, are done at the East New York base shop in Brooklyn, one of the best equipped bus maintenance shops in the world.

In fiscal 1953, the surface operation was poorly organized, inefficiently run and operated at a deficit of \$14.6 million for the year. It was one of the many departments under the General Superintendent of rapid transit. The fleet then consisted of 2,140 gasoline and

diesel buses, 120 trolley cars, and 200 trolley coaches.

Replacement of the trolley cars, trolley coaches and gasoline buses was inevitable. Obsolescence and the diversity of equipment made for high operating and maintenance costs. The overhead wires and the trackways of the trolley lines were costly to maintain. Inability to reroute trolley lines prevented adjustments in service to conform with population shifts and changes in traffic patterns.

The Authority undertook the reorganization and revitalization of the surface lines as one of its first orders of business. It brought in a new head for the Surface Division, who reported directly to the General Manager. He reorganized operations into two subdivisions, each under a subdivision chief. Parallel and closely coordinated supervisory hierarchies were established for maintenance and operation, ranking from subdivision chiefs to location chiefs in each depot. Team work and discipline were inculcated and maintained.

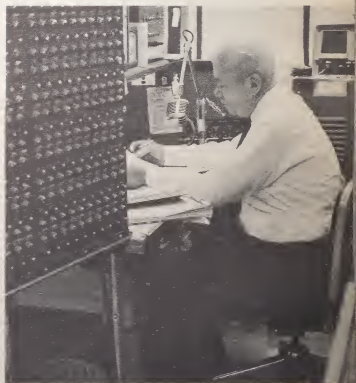
In 1954, the Surface Division established an engineering unit responsible for improving bus maintenance

Table I
Surface Passengers (in thousands)
Ten Years from July 1, 1953 to June 30, 1963

Fiscal Year Ended June 30	Surface Divisions				
	Total	Brooklyn	Staten Island	Queens	Manhattan
1954	448,517	315,741	29,296	68,510	34,970
1955	419,461	291,760	26,671	67,195	33,835
1956	413,308	286,231	25,598	68,232	33,247
1957	414,903	286,054	25,204	69,914	33,731
1958	413,050	282,871	25,126	71,257	33,796
1959	416,601	283,059	25,392	73,806	34,344
1960	431,014	292,427	25,770	77,068	35,749
1961	432,371	290,132	26,296	79,578	36,365
1962	445,812	298,955	26,406	80,330	40,121
1963	457,285	304,461	27,344	84,337	41,143



STATION KEA911 — Radio communication is maintained with surface vehicles via the Authority's control room and radio transmission tower at the East New York headquarters of its Surface Division.



methods and materials. To expedite the adoption and use of improvements, bulletins were published to spell out to mechanics the "what" and "how" of better maintenance procedures. A ready reference catalogue of replacement parts was printed. A scheduling unit studied bus routings, and planned for greater operating efficiencies.

Trolley car operation ended on October 31, 1956 when the Authority replaced the last cars with diesel buses. The last trolley coach line was replaced by diesel buses on July 26, 1960.

Improvements in maintenance and operation were matched by gains in communications. A Control Room at East New York now houses a radio station and a master teletype and information center. It is staffed by a superintendent in full charge of operations, a chief dispatcher and a maintenance expert. They can communicate instantly by two-way radio with dispatchers in 18 patrol cars which cover the bus routes throughout the city, with 17 repair and emergency trucks, with four wreckers, and, in the winter, with 20 snow fighters equipped with salt and sand spreaders and other equip-



1963 MODEL — The Authority is operating 350 of this model bus on various lines in Brooklyn, Manhattan and Queens.

ment to assist snowbound buses. The 24-hour teletype system links the East New York headquarters with the ten depots throughout the city.

Administrative and other new procedures were developed and installed. A stringent budget control system was instituted. Improved accounting methods which showed promptly the figures needed for management control were worked out with the Authority's Accounting Department. A Materials Control Unit was organized to review parts requests to simplify the acquisition of replacements, and to insure against inventory shortages and excesses. To safeguard the delivery and dispensing of the 20,000,000 gallons of bus fuel used each year, a triple-check fuel-accounting system, regarded as a model for the industry, was installed.

Work previously performed by outside contractors was brought into Authority shops for better cost and quality control. Such items as route sign curtains, previously purchased, were produced at lower cost in a sign shop. Fare box, radiator and fuel tank repair shops were established at East New York and auto and truck, and plant equipment maintenance departments were set up.

When a bus failed while in service for even the slightest reason the old method called for removing all passengers and trundling that bus back to a shop for

Table II
New Bus Deliveries

Year	No. of Buses
1956	318
1957	209
1958	121
1959	190
1960	305
1961	130
1962	175
1963	350

repair. This caused traffic delays and alienated passengers. The Authority attacked this problem by acquiring a fleet of small trucks equipped and manned for road repairs. Stalled buses in most instances are now repaired at the site of the breakdown or promptly replaced so that service interruptions are kept at a minimum.

BUSES

In addition to the improvements in administration, operations, and maintenance, the Authority, with capital funds provided by the City, embarked on a long-term bus replacement program. The plan is generally to replace buses as they become 15 years old. The goal is to have enough good quality rolling stock by 1966-67 to allow the Surface Division to replace one-fifteenth of the fleet each year.

Since 1957 the Authority has received new buses as shown in Table II.

The improvements in the bus fleet and in maintenance and operations have increased riding and reduced costs. The result was the elimination in 1957 of the surface operating deficit which had reached \$5.1 million in 1955. For 1962-63 the Surface Division's net revenue was \$835,685.

Further evidence of the improvement in the bus fleet is given by the record of failures of buses while in passenger service. In 1953 there were 22 failures per 10,000 bus miles operated. There has been a steady decrease to 5 per 10,000 bus miles in 1962-63.

Great care is exercised by the Surface Division in the purchase of new buses. Stringent contract specifications are drawn up by Transit Authority engineers. During the period of assembly Authority inspectors check the work at the manufacturer's plant to insure compliance with these contract specifications.

Virtually every new order of buses has brought with it improvements in design and construction which have benefited the passenger, driver and maintenance man. For example, the 1958 buses featured dual exhausts, fiberglass seats, and the "push" exit door which completely removes its control from the bus operator. This type of exit door is generally accepted as a safety device and time-saver. By pushing a metal bar, the passenger himself opens the center door and thereby controls the safety of his exit. Its use has reduced the number of center door accidents.

The most radical departure in bus design since the rear motor made its appearance in the Thirties, is the "new look" bus purchased since 1959. This type has larger windows and a wider and higher front windshield, affording 50% greater visibility than prior models. A V-six engine has replaced the traditional straight-six and provides more power, more miles per gallon and faster starts. The buses are now equipped with a more efficient coin box which accepts pennies,

nickels and dimes, and the subway tokens which were rejected by the older machines. Attractive colors, formica ceilings, anodized aluminum side panels and fibreglass seats enhance the interiors. To induce passengers to move away from the front doors, the new buses have longitudinal seats in the front and transverse seats in the rear. This opens up the front of the bus and enables passengers to move easily to the more desirable seats in the rear. It has also eased the exiting of passengers through the center door.

GARAGES

Because of insufficient garage space it is still necessary to use outdoor storage areas for a large part of the bus fleet. In cold weather vehicles so stored were once difficult to start and uncomfortable to ride, which acted as another deterrent to public patronage. The Authority is overcoming this problem with outdoor bus heating systems which are in use at the Crosstown and Fifth Avenue Depots and will soon be installed in the Jamaica and Flatbush Depots. These systems operate by pumping hot water from a boiler through underground pipes to covered outlets recessed in the ground at various points in the outdoor storage area. The hot



BUS WASHING — Exterior cleaning of buses is a standard practice of the Transit Authority on its Surface Division. Here a bus is passing through the washing machine at the East New York Garage.

water is pumped into a bus radiator and circulates through the engine and the heaters under the bus seats, warming the bus. Each boiler services about a dozen buses. The device is so arranged that buses cannot be operated while the hoses are connected.

Garage facilities were expanded in 1958 when the Authority altered its Crosstown Depot at Box and Commercial Streets in Greenpoint, from a trolley coach to a bus depot. This depot has facilities for bus maintenance and service and outdoor storage space for 140 buses. Another new garage was opened in July, 1960 at Fresh Pond Road in Queens. Designed to house and service about 200 buses, the 250 by 500 foot building is equipped with the latest inspectional and maintenance devices. Its steel-skeleton construction provides a pillarless interior which greatly facilitates bus movement and storage and prevents in-garage accidents. This garage also contains a blower system for vacuum cleaning bus interiors. The vacuum device covers the front door opening of a bus, and by high-pressure air action, draws all dirt and dust out of the vehicle. In a fraction of the time previously required, the bus interior is thoroughly cleaned.

The opening of Fresh Pond Garage coincided with the end of trolley coach operation; the closing of the trolley coach depot at Bergen Street, Brooklyn, and the West Fifth Street Bus Depot, Brooklyn. The Bergen Street building was turned over to the Maintenance of Way Department for a sign and maintenance shop. The West Fifth Street Depot site has been used as part of a large middle-income housing development.

In 1963 the garage at 126th Street and Second Avenue was no longer needed by the Manhattan and Bronx Surface Transit Operating Authority and became available for Transit Authority use. The two small buildings at East 100th and East 108th Street that had been used by the Manhattan Bus Division were returned to the City. The Manhattan Bus Division fleet was moved into the 126th Street garage with resulting economies in operation and maintenance.

As the demand for buses has increased in rapidly growing Queens, the Transit Authority has assigned additional vehicles to that Borough's routes. More room has been provided at the Jamaica Bus Garage to handle the bigger fleet and more bus terminal stops have been established at the heavily used Hillside Avenue-179th Street connection with the IND subway.

Immensely proud of its operation and anxious to

reveal its "behind-the-scenes" activities, the Surface Division held its first "Open House" in 1956 when the public was invited to visit the East New York Shop. This proved so popular and successful that the "Open House" has become an annual event and has been extended to the subway system as well.

PERSONNEL

In 1957 the Surface Division opened its Supervisory Training School for instruction of employees in improved methods of administration and maintenance. A Dispatcher Training Program was devised to improve the efficiency of this important supervisory function.

The Authority's Employees' Suggestion Program has been widely used by Surface personnel, and maintenance employees have demonstrated their inventiveness in building many new devices. An outstanding example is the snow-fighting vehicle developed in 1957. Instead of purchasing new snow equipment, buses still in good running condition but no longer fit for passenger service were stripped of interior fittings. Two hoppers were installed in each vehicle, one for salt and the other for sand. A motor was placed between the hoppers to spread the correct mixture of salt and sand along bus routes. Painted bright yellow and brilliantly lighted for safety, 20 such snow-fighters are now in operation, together with regular snow plows and emergency vehicles designed to keep the buses running in all kinds of weather.

SERVICE

Since 1953, the Surface Division has adjusted its bus routes according to passenger needs. The Authority has been especially responsive to requests for additional service in new and growing communities. Occasionally, civic groups have criticized the Authority for responding slowly to requests for new service but lines can be added or extended only after study of the public need and the operating problems involved. Throughout the year, the Surface Division conducts analyses of passenger counts and, when a significant change is detected, service is adjusted realistically to meet the demand.

Two completely new lines were created: the B-78 Mill Basin-IRT run in Brooklyn, linking the Sutter Avenue IRT station and the growing community of Mill Basin, in 1961; and in 1962 the Q-76 Francis Lewis Boulevard-Hillside line running crosstown in

Queens, connecting the Whitestone area and the Hillside Avenue-179th Street IND subway terminal.

In addition, the Authority has extended runs on eight other lines at various times: B-5, Kings Highway; B-60, Wilson Avenue; B-6, Avenue J-Bay Parkway; B-10, New Lots; B-17, Remsen Avenue; Q-28, Flushing-Bayside; B-44, Nostrand Avenue Q-4A, Merrick Boulevard-St. Albans. A Merrick Boulevard-Rosedale line has been approved by the Board of Estimate to provide bus service to the huge Rochdale Village Co-operative housing project on the site of the former Jamaica Race Track, after roadways are completed.

Applying the same theories of need and cost, the Transit Authority eliminated the following bus operations: B-27, Fulton Street Extension and B-44, Holy Cross Shuttle in Brooklyn; Q-32 Queens Village-Creedmore Hospital in Queens; and R-118 Oakwood Beach in Staten Island. The Authority also eliminated Saturday and Sunday service on eight lines where investigations showed it to be unnecessary.

Wherever possible, the Surface Division has attempted to arrange its routes to conform with the needs of the increasing number of children who must ride to schools. The gain in student riders has had positive and negative effects. The Authority has added to its revenue and provided a service to the City's youngsters. On the other hand, the Authority has been compelled to cope with increased vandalism. Torn seat cushions, punctured ceiling fixtures and other acts of destruction brought the cost of vandalism to \$200,000 in 1956. The antidote, the Authority believes, is education of the children and "vandal-proof" accessories. The new rip-proof fibreglass seats, aluminum side panels and formica ceilings in the new buses fit the latter category. Education has taken the form of talks given in schools, and guided tours through bus shops for the editors of school papers. These actions have reduced the cost of vandalism by \$70,000 per year.

Although diesel engine exhaust fumes are less harmful to humans than the carbon monoxide of gasoline engines, the odor and color are still offensive. To minimize these conditions, bus drivers must report "smoking" buses which emit excessive fumes and these vehicles are immediately taken off the runs, inspected and repaired. Further gains in the suppression of "smoking" buses have been achieved through the specification of a higher priced, higher quality fuel; a program of fuel-checks; improved diesel rejector main-

tenance; and installation of a bus exhaust pipe that directs the fumes downward, thereby dispersing them along the ground rather than into the air.

Traffic congestion is a greater problem. Each year more autos clog the streets and impede traffic. Efficient bus operation is difficult in many areas. The Authority has been working closely with the New York City Traffic and Police Departments to alleviate this situation. Before undertaking a change in street patterns, the Traffic Department consults with the Authority to produce a mutually acceptable plan. During the past year exclusive lanes have been set aside for buses during the rush hours on sections of two streets in Brooklyn and Staten Island. The results so far have been highly successful in Staten Island and moderately so in Brooklyn and are being studied for use in other parts of the surface system. Suggestions that the Authority operate express buses on highways such as the Long Island Expressway have been rejected because extreme highway congestion during rush hours would result in excessive travel times to midtown Manhattan.

Plans are being developed to meet surface transit needs for the 1964-65 New York World's Fair at Flushing Meadow, Queens. New lines and extensions may be added. When the Verrazano-Narrows Bridge is completed, the Authority plans to establish a bus line linking Brooklyn with Staten Island. Other possible extensions and additions are contemplated for Queens and Staten Island as the boroughs continue to grow.

One of the lesser known aspects of the surface operation has been the emergency aid given to City agencies. On numerous occasions, the Authority has supplied buses to the Fire, the Police and other City Departments when they required immediate and efficient transportation. During Hurricane Donna in 1960, the Authority provided buses and personnel to the police. It did the same in 1961 during emergencies created by Brooklyn and Staten Island air crashes. The Authority has sent buses to major highways to rescue snowbound motorists, and has assigned buses to move police guarding United Nations personnel and visitors. Buses were used to transport firemen to combat brush fires in Staten Island and to carry police handling the parade honoring astronaut John Glenn.

Overall, the picture is bright as the Transit Authority surface operation embarks on its second decade. The heavy work, the reorganization and rejuvenation has for the most part, been completed.

Personnel, Administration and Finance

LABOR RELATIONS

At the time management of the system was transferred from the Board of Transportation to the New York City Transit Authority, labor relations were governed by a memorandum of understanding with nine organizations that represented transit employees. It covered wages, hours and working conditions. However, no union or employee organization was granted exclusive representation even though some could claim the enrollment of a majority of workers in specific divisions or titles. The Board of Transportation had followed a policy of discussing labor problems with any employee group whether it represented a majority or not.

The original five-member part-time Authority followed a similar policy. It also took the view that it could not legally grant exclusive bargaining rights to any labor organization. Both the signing of an exclusive bargaining contract and recognition of an impartial arbitrator with final power to resolve grievances of Authority employees were recommended in 1954 by a fact-finding committee that had been appointed by the Mayor to avert a threatened strike. The original Authority rejected this proposal on legal grounds.

However, an election to determine the support of various labor organizations by Transit Authority employees was held in 1954. This election became the basis for exclusive representation contracts signed by the three-member full-time Authority after it took office in 1955. In addition an impartial arbitrator was appointed. Both these decisions by the new Authority were upheld in the courts. A second election in 1957 and another in 1959 had the same results, verifying that the Transport Workers Union represented the majority of hourly-paid employees, except those in the Queens and Staten Island bus divisions who had been for many years represented by the Amalgamated Association of Street, Electric Railway and Motor Coach Employees of America. In all, the Authority now has agreements with fourteen employee organizations representing about 28,000 or 80% of its employees including those that represent supervisors, engineers, clerical and administrative employees, and transit policemen.

Before the Transit Authority was created, the transit system up to 1953 had suffered work stoppages and slowdowns on sixteen different occasions in the preceding four years. Since 1953, only two stoppages have occurred. These were wildcat incidents involving motormen. The conflicts that brought them about have since been resolved.

The Impartial Arbitrator is the last resort of aggrieved employees under the grievance procedure spelled out in the union contracts. His rulings are final and binding and he has played an important part in the maintenance of good labor relations. This office has been filled by Theodore W. Kheel since 1956. In this period he has been asked to rule on 606 grievances by individual employees or groups of employees. In 374 of these he ruled, partially at least, in favor of the employee, in 185 he decided against the employees, 17 were withdrawn, 11 were referred back for further negotiations and the balance are under consideration.

Since the Transit Authority was established in 1953, the budgeted wages of hourly-rated employees have increased from an average of \$1.82 per hour in 1953 to the current average of \$2.78. In addition, the contracts included improvements in vacations, sick leave,

Table III
Transit Employees

As of July 1,	* Number of Employees
1953	43,731
1954	43,070
1955	42,068
1956	40,638
1957	38,537
1958	37,207
1959	36,115
1960	34,360
1961	34,219
1962	34,178
1963	33,963

* Including full and part time employees paid from operating funds.

pensions, health and hospitalization insurance and other benefits.

The improved efficiency of maintenance, operation and administration plus the cooperation and understanding of organized labor has enabled the Authority to reduce its work force from 43,700 employees to 34,300 in the last ten years. This reduction in the work force was accomplished through the normal turnover of the labor force — the elimination of unnecessary vacancies, the filling of other assignments by transfer of qualified personnel and the limiting of new appointments.

TRAINING

In the last ten years, training facilities provided by the Authority have more than doubled, as have the opportunities provided employees to do a better job and to prepare for advancement within the transit system. A continuing effort has been made by the Authority to apply to its operations the most advanced of training methods. During the past year, the Authority conducted courses in 89 different subjects, involving 28,000 employees who spent 403,000 hours attending formal classes. Among the areas in which instruction was given, the following were the most important:

- Executive Development
- Engineering Techniques
- Labor Relations for Supervision
- Data Processing
- Public Relations
- Supervisory Orientation
- Advanced Technical Lectures
- Equipment Maintenance Familiarization
- Job Qualification and Induction
- Instructor Training
- Police Recruit Indoctrination
- Advanced Police Methods
- Safety, Fire Protection, Flagging and First-Aid
- Various Refresher Courses

Assistance was obtained from the New York City Board of Education to organize 32 maintenance courses for Authority personnel, and to qualify an expanding staff of instructors to present them effectively.

The Authority continued its Supervisory Orientation for approximately 500 staff members. It participated in the Executive Training Program of New York University.

Intensive public relations training was given to 1,250



EMPLOYEE TRAINING — A typical class in session in the Authority's 207th Street Car Maintenance headquarters, using modern visual aid techniques in the learning process.

Railroad Clerks and Porters. Attitude surveys of these trainees and the public they serve indicate an improvement in their day-to-day relationships. Every course given by the Authority includes the concept that the public must be served as courteously, efficiently, safely and comfortably as circumstances allow.

Future training plans provide for the continuation of employee training and the exploration of new areas of personnel development to match the demands of modern operations.

LEGISLATION

Close attention has been paid by the General Counsel's office to proposed legislation that might affect this Authority. The Authority comments on all bills with which it is concerned, opposing some and supporting others. This is done by letters to legislators and legislative committees. In addition, the Authority itself proposes legislation on matters such as the establishment of a Transit Police Department and the issuance of bonds to finance the purchase of rapid transit cars.



SAFETY

The Authority has carried on an active safety program in all areas of employee and public accident prevention. Pertinent statistics for the years since 1953 appear in Table IV.

Each year an employee safety program is planned as an aid to supervision, pinpointing ways and means of stimulating interest among employees. "Five Minute Safety Talks" and posters are distributed monthly for use by supervisory personnel in the education and instruction of their employees. In addition, films and "safetygraphs" pertaining to the subject of the month are used by the various departments, and a yearly calendar with safety comments is distributed to supervision. A program for passenger and traffic accident prevention is also prepared annually as an aid to supervision in the education and instruction of operating personnel.

The Transit Authority has been the recipient of many safety awards. This year it received the National Safety Council's "Award of Merit" for a noteworthy reduction in industrial accidents. It also won the Mayor's Safety Award, a Certificate of Achievement for attaining a specific percentage reduction in the disabling accident frequency rate.

In the Greater New York Safety Council's Inter-Plant Industrial Accident Reduction Contest, which had 264 contestants, 65 Transit Authority Units were entered, five earned first place awards, and seven earned honorable mention for having had no disabling injuries during the six month period of the contest. Four units of the Transit Authority earned American Transit Association Bronze Certificates, awarded for working between 250,000 and 500,000 man-hours without a disabling injury.

In the Surface Division, Safety Representatives at-

Table IV
Safety Record

Year Ended June 30	Employee Lost Time Accident Frequency Rate (Per 1,000,000 Man Hours Worked)	Passenger Accident Rate (Per 1,000,000 passengers carried)	Rapid Transit	Surface	Traffic Accident Rate (Per 1,000,000 bus miles operated)
1953	10.3	11.1	6.09	106.7	
1954	8.7	10.1	6.34	95.8	
1955	8.3	10.5	6.70	88.5	
1956	9.3	10.6	6.30	83.6	
1957	11.0	10.1	6.23	79.9	
1958	10.5	9.6	6.41	86.2	
1959	8.4	9.2	5.92*	74.0	
1960	8.4	9.2	5.24	75.8	
1961	9.4	9.2	4.82	77.4	
1962	9.3	8.2	4.66	67.9	
1963	9.0	9.9	4.45	70.8	

* Push exit door introduced.

tend Accident Prevention Committee Meetings held at each depot. At these meetings, the Safety Representative, a Surface Line Dispatcher-Instructor and two Operators meet with every operator who has been involved in an accident, discussing with him the safe practices and measures by which similar and other types of accidents can be avoided. Also, Supervisory Safety Meetings are held monthly at all locations in Transportation and Maintenance.

The Authority has participated in the National Safety Council's Safe Driver Award Program since 1958. Out of a total of 4,848 Surface Line Operators, 3,223 received Safe Driver Awards for periods without an accident, as follows: Five year pin — 863; Four year pin — 550; Three year pin — 425; Two year pin — 626; and One year pin — 759.

Two Depots won first place awards in the Greater New York Safety Council's Inter-Fleet contest for the calendar year 1962: Fresh Pond Depot as winner of the Traffic Accident Reduction Contest with a 9% reduction, and Fifth Avenue Depot as winner of the Passenger Accident Reduction Contest with a reduction of 25%.

In the Rapid Transit Operating Department, safety discussions together with a safety refresher program for motormen and conductors at the Transportation Schoolroom at 14th Street, helped bring about an overall decrease of 8% in passenger accidents.

POLICE

In the interests of passenger safety, the size of the Transit Police Department was increased from 652 members and a budget of \$2,635,000 in 1953 to 972 members and a budget of \$8,388,000 in 1963. The nature of the transit system, its many points of congestion and the distances between them, and the constant ebb and flow of its traffic peaks presents a special policing problem. In 1955, control of the transit police by the New York City Police Department was terminated and a separate Transit Police Department was set up headed by its own officers who specialized in crime prevention and safety on the transit system. The result has been greater efficiency in protecting passengers as they travel the lines of the transit system. Training activities were accelerated and expanded, a radio motor patrol on surface lines was organized and a public safety squad was formed to deal especially with disturbances and vandalism by juveniles.

ELECTRONIC DATA PROCESSING

A major administrative improvement was the introduction of electronic data-processing equipment to replace manual and partially mechanized office procedures. The new high-speed computers have provided a number of cost-saving services and promise to produce further efficiencies.

Table V
Crimes Reported

Fiscal Year Ended June 30	Felonies	Misde- meanors	Offenses	Total
1956	1,360	4,442	4,519	10,321
1957	1,001	2,982	3,623	7,606
1958	844	1,983	5,793	8,620
1959	964	1,892	5,568	8,424
1960	968	1,773	6,016	8,757
1961	941	2,043	5,954	8,938
1962	968	1,986	6,673	9,627
1963	1,042	1,823	7,065	9,930

Table VI
Crimes Cleared by Immediate Arrest

Fiscal Year Ended June 30	Felonies	Misde- meanors	Offenses	Total
1956	180	660	3,995	4,835
1957	218	876	3,337	4,431
1958	197	607	5,561	6,355
1959	230	494	5,326	6,050
1960	242	606	5,782	6,630
1961	283	722	5,742	6,747
1962	263	698	6,446	7,407
1963	322	679	6,902	7,903



SUBWAY BANKING

A typical installation offering banking facilities to subway riders at the 42nd Street Station of the IND 8th Avenue Line.

At the end of 1956 a data-processing center equipped with electronic computers was set up at Transit Authority headquarters. The Authority had, at that time, \$13,000,000 invested in inventories of spare parts and materials ranging from large items, used in rapid transit car repairs, to paper clips. These stores of more than 150,000 items were difficult to control by manual clerical methods. A system of control was programmed for the computers. A parts catalogue was prepared and about 40,000 stock items were dropped through standardization and the elimination of duplicates. The number of storerooms operated by the Authority was reduced from thirteen to eight. The computers have thus made possible stricter control of stores and centralized purchasing.

The use of the computers to determine car mileage and inspection intervals resulted in the simplification of mileage records and prompt and more accurate selection of vehicles scheduled for periodic maintenance and inspection. The daily report on cars makes it possible to determine the status and location of each unit of this equipment.

At present, computers are used to provide stores controls, car mileage and inspection records, accident statistics, revenue audits and for many different tasks in the preparation of Transit Authority payrolls. The greater efficiency that results from the use of these machines has helped the Authority to control its operating costs.

As additional tasks are planned for this data processing equipment it will become necessary to procure machines with greater capacity. Planning has therefore begun for the selection and installation of a magnetic tape computer system.

ADVERTISING AND CONCESSIONS

During the ten year period of Authority operation, the revenue from advertising and concessions has increased from \$4,884,000 in 1953 to \$5,816,000 this year. Revenue decreases in some of the older types of concessions, such as newsstands and advertising in the subway trains and buses, and on station platforms, have been more than offset by earnings from new businesses that have been attracted by the vast numbers of people concentrated on the transit facilities. Savings banks have opened eight branches in subway stations. New luncheonettes and snack bars have proliferated. There are bakeries, doughnut shops and pretzel stands, stores selling ladies stockings and many other shops providing a variety of items to meet almost every need of the transit passenger.

In addition to these facilities within the system, the Authority is receiving substantial revenue from advertisements on the outside of buses, and from attractive illuminated billboards attached to elevated structures and stations.

Every one of the Authority's internal functions has been reviewed to increase efficiency. A committee has worked since 1955 to reduce paper records of various kinds kept by the Authority. The committee has caused the destruction of the equivalent of 2,000 four-drawer cabinets of obsolete and useless records. These have included many inherited from the Board of Transportation and its predecessor companies. Badly needed storage space for live files has thus been obtained. At the same time shorter periods for the retention of certain current files have been established.

Results of Operation

Prior to July 1, 1953 under the Board of Transportation and a ten cent fare, the New York City Transit System was operated at a deficit which was subsidized by the City from its tax revenues. This deficit was nearly \$4 million a month in 1952-53. After July 1, 1953 with no resources other than its own revenues, and with a legal mandate to put its operations on a self supporting basis, the New York City Transit Authority was impelled to raise the fare to fifteen cents.

While the cost of living index rose from 112.7 in July, 1953 to 131.0 in June, 1963 the fifteen cent fare has been held inviolate. Although operating deficits were experienced in four of these ten years, the accu-

mulated surpluses of the other years has enabled the Authority to meet its financial obligations. Table VII provides a ready comparison of revenues and expenses for fiscal 1963 with the prior period and also with the Authority's first full year of operation, namely fiscal 1954. In the appendix of this report a ten year summary is provided.

REVENUES

Passenger revenues increased by \$600 thousand over fiscal year 1962 and by \$6.5 million over fiscal 1954. The increase over the latter year is attributed to the lesser ten cent fare which prevailed from July 1 to July

Table VII

NEW YORK CITY TRANSIT SYSTEM

Comparative Statements of Revenues and Expenses (in millions)

	Fiscal Year Ended		Change	Fiscal Year	Change
	June 30, 1963	June 30, 1962	from 1962	Ended June 30, 1954	from 1954
REVENUES					
Passengers	274.3	273.7	+ 0.6	267.8*	+ 6.5
Other Services	<u>12.6</u>	<u>12.3</u>	+ 0.3	<u>5.9</u>	+ 6.7
	<u>286.9</u>	<u>286.0</u>	+ 0.9	<u>273.7</u>	+ 13.2
EXPENSES					
Salaries, Wages and Associated Personnel Costs...	253.1	238.5	+ 14.6	210.1	+ 43.0
Materials, Supplies, Power	44.7	45.0	- 0.3	33.7	+ 11.0
Reserves	6.0	5.9	+ 0.1	19.1	- 13.1
Miscellaneous	8.3	8.5	- 0.2	5.1	+ 3.2
Credit from City for Transit Police Costs	(8.9)	(7.9)	+ (1.0)	-	+ (8.9)
	<u>303.2</u>	<u>290.0</u>	+ 13.2	<u>268.0</u>	+ 35.2
EXCESS OF EXPENSES OVER REVENUES	16.3	4.0			
CHANGE FROM 1962			- 12.3		
EXCESS OF REVENUES OVER EXPENSES				5.7	
CHANGE FROM 1954					- 22.0

* 10¢ fare to 7/24/53, 15¢ fare from 7/25/53.

24, 1953 and to the fact that the City did not reimburse the Authority in 1954 for the difference between the regular and the reduced rates of fare for school children.

Other sources of revenue presently include advertising and concessions income (up \$600 thousand over 1962), interest income (up \$100 thousand), and miscellaneous items (down \$400 thousand). Also included for 1963 and 1962 is the \$5 million credit provided by the City to compensate the Authority for the loss of its power plants in 1959. This, plus the interest on investments and higher concessions income, accounts for the \$6.7 million increase over fiscal 1954.

EXPENSES

The major item of expense in fiscal 1963 was the \$253 million for employees salaries and the concomitant contributions to the New York City Employees Retirement System; to Social Security, and to the vari-

ous health insurance funds. This was \$14.6 million more than 1962 and \$43 million more than fiscal 1954. However, unlike 1963, in 1954 no contributions were made to Social Security and Health Insurance, and the Authority did not provide for the first five percent of each employee's personal contribution to his annuity fund. Conservatively, this would have added \$15 million to the 1954 labor cost. In addition, the cuts in manpower in the past ten years produced savings estimated at \$85 million a year at current wage rates.

"Materials, Supplies, Power" comprise the cost of the replacement parts and ordinary supplies which were consumed, bus fuel and electricity. The cost of materials and supplies dropped by \$136 thousand from the past year but increased by \$780 thousand over 1954. Bus fuel costs dropped by \$150 thousand from 1962 and \$900 thousand from 1954, reflecting, in part, the greater operating efficiency of the newer buses. In 1954 power costs included the purchase of electricity

Table VIII

Revenue Passengers (in thousands)

Ten Years from July 1, 1953 to June 30, 1963

Fiscal Year Ended June 30	System Total	Rapid Transit	Surface
1954	1,864,888	1,416,371	448,517
1955	1,797,611	1,378,150	419,461
1956	1,776,442	1,363,134	413,308
1957	1,770,287	1,355,384	414,903
1958	1,732,507	1,319,457	413,050
1959	1,740,655	1,324,054	416,601
1960	1,775,967	1,344,953	431,014
1961	1,795,107	1,362,736	432,371
1962	1,815,319	1,369,507	445,812
1963	1,819,537	1,362,252	457,285

Table IX

Number of Tickets and Eligibility Cards Issued to
School Children for Reduced Fare Riding

Fiscal Year Ended June 30	Average Monthly Tickets Sold	High School Eligibility Cards Issued	Total
1954	No data available		
1955	No data available		
1956	42,707	178,281	220,988
1957	48,441	197,139	245,580
1958	50,069	201,433	251,502
1959	61,412	241,182	302,594
1960	64,474	240,872	305,346
1961	64,795	244,266	309,061
1962	68,489	262,216	330,705
1963	74,108	275,006	349,114

for the IND Division and the fuel costs for power produced at the Authority's three plants for a total of \$17.6 million. The production of power by the Authority ceased in 1959. The bill for power purchased in fiscal 1963 was \$28.7 million, accounting for the total increase over fiscal 1954 of \$11 million for "Materials, Supplies, Power."

Reserves in 1954 included \$15 million for Deferred Maintenance. This reserve is non-existent today because, under the Authority's operating standards, maintenance is kept current, there is no postponement of necessary repairs. Other reserves for Public Liability and Workmen's Compensation are \$100 thousand greater than a year ago and \$1 million more than in 1954.

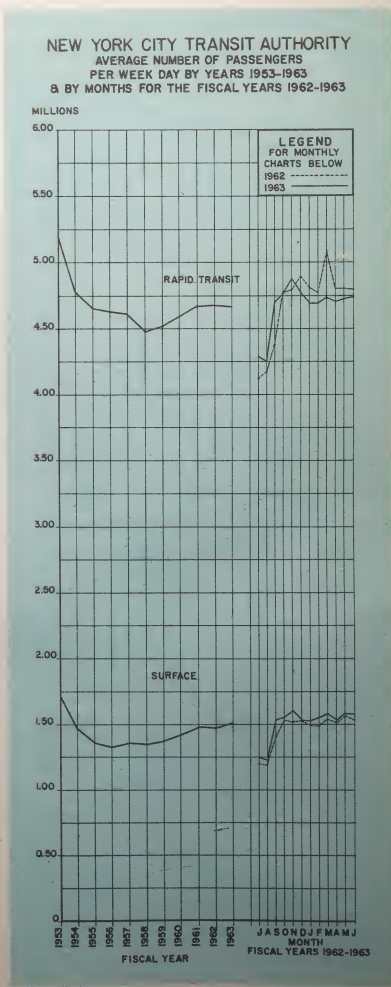
Miscellaneous expenses which rose by \$1.4 million since 1954 include the rental of tires, trucks, data processing machines and other special equipment. Other miscellaneous expenses rose by \$1.8 million in this period of ten years.

The City of New York did not contribute to the cost of policing the transit system in 1954. This credit against the Authority's operating costs began on January 1, 1960. The application of the current credit of \$8.9 million brings the overall ten year increase in operating expenses to \$35.2 million or a net change, after adjustment for higher revenues, of \$22 million.

SURPLUS

The accumulated surplus balance as of June 30, 1962 was \$29.7 million. The year's operating deficit of \$16.3 million reduced this balance to \$13.4 million. (See Statement of Assets and Liabilities in Appendix.)

Figure V
Average Number of Passengers
Per Weekday by Years 1953-1963
and by Months for the Fiscal Years
1962-1963



RIDING TRENDS

The number of passengers carried by the New York City Transit System in fiscal 1963 was the highest of any year since 1955 and continued the trend begun in 1958 when the first of the Authority's major improvement projects became effective. (See Table VIII and Fig. V). The greatest improvement is apparent on the surface lines where the total number of riders exceeded that of any other year of the Authority's administration.

Contributing to the passenger increase is the greater utilization of transit facilities for the transportation of school children. Table IX traces school riding from 1956, the first year in which these records became available.

The percentage of travel during peak hours shows a small continuous reduction over the past eight years (see Table XI and Fig. VI).

Weekend and holiday travel has held fairly steady since 1955 after an initial drop in riding due to the fare increase in fiscal 1954. (See Table X).

Table X

Average Number of Saturday, Sunday & Holiday

Passengers as a Percentage of Average

Weekday Passengers

Fiscal Year Ended June 30	Rapid Transit Lines	Surface Lines	System Total
1954	40.66%	56.30%	44.27%
1955	38.86	53.72	42.20
1956	38.64	51.85	41.60
1957	39.03	50.96	41.73
1958	37.22	48.66	39.86
1959	38.19	48.75	40.64
1960	37.29	48.95	40.03
1961	37.70	49.88	40.65
1962	37.71	49.19	40.44
1963	37.61	48.14	40.18

Table XI

Peak Hour Rapid Transit Passengers as a Percentage of the 24-Hour Total on a Typical Weekday

Fiscal Year Ended June 30	Heaviest Morning Hours 8 - 9 A.M.	Heaviest Evening Hours 5 - 6 P.M.
1954	13.94%	15.38%
1955	14.47	15.37
1956	14.48	15.59
1957	14.30	15.41
1958	13.47	14.80
1959	13.81	14.62
1960	13.47	14.97
1961	13.49	14.18
1962	13.72	14.81
1963	13.27	14.32

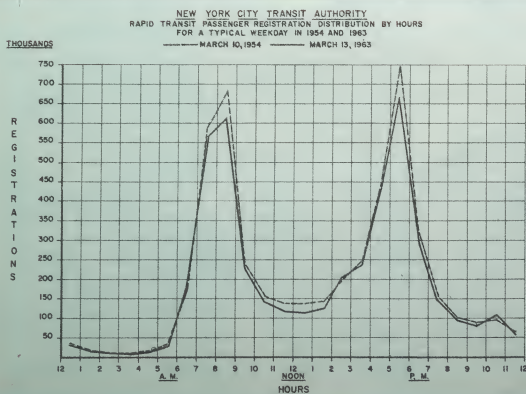
Two Morning
Peak Hours
7 - 9 A.M.Three Evening
Peak Hours
4 - 7 P.M.

Fiscal Year Ended June 30	Two Morning Peak Hours 7 - 9 A.M.	Three Evening Peak Hours 4 - 7 P.M.
1954	26.15%	31.30%
1955	26.58	31.14
1956	27.11	31.75
1957	26.83	31.61
1958	25.91	30.84
1959	26.09	30.92
1960	25.77	30.83
1961	25.40	29.69
1962	25.57	30.54
1963	25.51	30.12

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Figure VI
Rapid Transit Passenger Registration Distribution by Hours for a
Typical Weekday — March 10, 1954 and March 13, 1963



NEW YORK CITY TRANSIT AUTHORITY

Statement of Assets and Liabilities

as of June 30, 1963

ASSETS AND OTHER DEBITS

CURRENT ASSETS:

Revenue Fund (including \$28,740,731.02 Time Deposits)	\$39,946,933	
Cashier's Imprest and Other Funds	3,027,602	
Operating Fund	958,980	
Total Cash for Current Operations		\$ 43,933,515

Accounts Receivable:

City of New York	\$ 3,302,101	
Other	1,347,228	
	\$ 4,649,329	
Less — Reserve for Doubtful Accounts and Allowances	265,087	

4,384,242

Accrued Interest on Revenue Fund Time Deposits	264,527	
--	---------	--

Materials and Supplies, at Average Cost	\$19,670,000	
---	--------------	--

Less — Provision for Inventory Adjustments	1,126,659	
--	-----------	--

18,543,341

Work in Progress	2,667,000	
----------------------------	-----------	--

Prepaid Expenses	1,194,421	
----------------------------	-----------	--

Total Current Assets		\$ 70,987,046
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CASH AND SECURITIES ON DEPOSIT FROM CONCESSION-
AIRES, LESSEES AND OTHERS

1,274,750

FUNDS:

Bond Proceeds Account	\$48,204,100	
Debt Service Reserve Fund	3,193,767	
Debt Service Fund Interest Account	131,859	

51,529,726

TOTAL ASSETS AND OTHER DEBITS		\$123,791,522
---	--	---------------

LIABILITIES AND OTHER CREDITS

CURRENT LIABILITIES:

Accounts Payable	\$ 8,565,269	
Accrued Payrolls	5,043,196	
Payroll Taxes Withheld and Accrued	6,870,684	
Vouchers Payable — Operating Fund	<u>958,980</u>	
Total Current Liabilities		\$ 21,438,129

LIABILITY FOR PREPAID TRANSPORTATION..... 3,145,865

FUNDED DEBT: 1962 SERIES A GROSS REVENUE BONDS..... 50,900,000

RESERVES:

Public Liability	\$11,561,893	
Workmen's Compensation	<u>5,800,966</u>	
		17,362,859

LIABILITY FOR DEPOSITS FROM CONCESSIONAIRES,
LESSEES AND OTHERS..... 1,274,750

WORKING CAPITAL PROVIDED BY THE CITY OF NEW YORK 16,222,663

EXCESS OF REVENUES OVER EXPENSES:

Balance at June 30, 1962	\$29,138,389	
Increased School Fare Revenue for Fiscal Year 1962	<u>596,966</u>	
Adjusted Balance at June 30, 1962	\$29,735,355	
Deficit for the Fiscal Year Ended June 30, 1963	<u>\$16,423,143</u>	
From Bond Proceeds Accounts November 1962 to June 1963	<u>135,044</u>	<u>16,288,099</u>
Balance at June 30, 1963		13,447,256

TOTAL LIABILITIES AND OTHER CREDITS..... \$123,791,522

NEW YORK CITY TRANSIT AUTHORITY

Statement Showing Results of Operation
for Fiscal Year Ended June 30, 1963

REVENUES:

	TOTAL	RAPID TRANSIT	SURFACE
Passenger Revenue (a)	\$274,275,928	\$205,647,238	\$68,628,690
Advertising and Other Privileges	5,815,691	5,557,062	258,629
Interest Income	1,044,838	784,137	260,701
Credit from City for Power Costs	5,000,000	4,999,869	131
Other	609,386	560,399	48,987
Total Revenues	<u>\$286,745,843</u>	<u>\$217,548,705</u>	<u>\$69,197,138</u>

EXPENSES:

Salaries and Wages	\$221,221,488	\$168,534,340	\$52,687,148
Contributions to City Retirement System	19,961,009	15,244,633	4,716,376
Social Security-Employer's Contributions	5,441,845	4,156,581	1,285,264
Health Insurance	6,462,036	4,982,865	1,479,171
Power Purchased	28,743,137	28,360,487	382,650
Fuel for Buses	1,596,854	—	1,596,854
Materials and Supplies	14,348,845	11,730,227	2,618,618
Rentals of Tires, Trucks and Other Equipment	2,172,733	1,448,367	724,366
Provision for Public Liability	5,000,000	2,900,000	2,100,000
Provision for Workmen's Compensation	1,000,000	763,704	236,296
Contract Maintenance	3,723,606	3,491,949	231,657
Miscellaneous	2,407,955	1,906,486	501,469
Credit from City for Transit Police Services	(8,910,522)	(8,712,106)	(198,416)
Total Expenses	<u>\$303,168,986</u>	<u>\$234,807,533</u>	<u>\$68,361,453</u>

EXCESS OF REVENUES (EXCESS OF EXPENSES)	<u>\$ (16,423,143)</u>	<u>\$ (17,258,828)</u>	<u>\$ 835,685</u>
Net Interest Income on Bond Issue	135,044	135,044	—

TOTAL EXCESS OF REVENUES (EXCESS OF EXPENSES)	<u>\$ (16,288,099)</u>	<u>\$ (17,123,784)</u>	<u>\$ 835,685</u>
---	------------------------	------------------------	-------------------

(a) Passenger Revenue includes \$12,104,308 for revenue receivable from the City of New York under the school program.

Revenue Car and Bus Miles	370,503,082	306,198,886	64,304,196
Revenues per Car and Bus Mile	77.39¢	71.05¢	107.61¢
Expenses per Car and Bus Mile	81.83¢	76.68¢	106.31¢
Revenue Passengers	1,819,536,831	1,362,251,702	457,285,129
Average Rate of Fare	15.07¢	15.10¢	15.01¢
Revenues per Revenue Passenger	15.76¢	15.97¢	15.13¢
Expenses per Revenue Passenger	16.66¢	17.24¢	14.95¢
Number of Employees:	33,963		
Annually Rated	5,723		
Hourly Rated	28,240		

NEW YORK CITY TRANSIT AUTHORITY

1962 Series "A" Bond Proceeds Accounts

at June 30, 1963

FUNDS:

Bond Proceeds Account:

(Depository — Manufacturers Hanover Trust Co.)

Cash (including \$47,540,271 Time Deposits)	\$47,541,005	
U. S. Treasury Bills	188,348	
Accrued Interest on Investments	452,025	
Unamortized Costs of Bond Issue	23,320	
	<u>\$48,204,698</u>	
Less — Bond Costs Payable	598	\$48,204,100

Debt Service Reserve Fund:

(Trustee — Chemical Bank New York Trust Co.)

Cash	\$	123	
U. S. Treasury Bonds — Cost	\$3,147,797		
Less — Accrued Amortization of Premium	888	3,146,909	
Accrued and Purchased Interest (Due 8/15/63)		<u>46,735</u>	
			3,193,767

Debt Service Fund Interest Account:

(Trustee — Chemical Bank New York Trust Co.)

Cash	\$	131,423	
U. S. Treasury Bills		261,356	
Accrued Interest on Investment		932	
	\$	<u>393,711</u>	
Less — Accrued Interest Payable		<u>261,852</u>	
			131,859

Paying Agent:

First National City Bank — Cash	\$	2,462	
Less — Interest Coupons Outstanding		<u>2,462</u>	

\$51,529,726

1962 SERIES "A" GROSS REVENUE BONDS

Outstanding as at June 30, 1963 \$50,900,000

NEW YORK CITY TRANSIT AUTHORITY

Comparative Operating Statements for the Years ended June 30, 1954 to June 30, 1963

(000's omitted)

	YEAR ENDED JUNE 30	19541955
Revenues:		\$ \$
Passenger Revenue	267,796,483	267,796,483
Advertising and Other Privileges	5,074,811	5,074,811
Credit from City for Power Costs	-	-
Other	81,103	81,103
Total Revenues	273,871,397	273,871,397
Expenses:		
Salaries and Wages	185,578,220	185,578,220
Contributions to N.Y.C. Retirement System	22,521,915	22,521,915
Social Security - Employer's Contributions	-	-
Health Insurance	1,982,075	1,982,075
Coal and Fuel for Power	8,558,186	8,558,186
Power Purchased	9,069,457	9,069,457
Fuel for Buses	2,492,126	2,492,126
Materials and Supplies	13,514,635	13,514,635
Rental of Tires	77,731	77,731
Prov. for Public Liability & Workmen's Compensation	4,093,971	4,093,971
Extraordinary Maintenance	15,008,000	15,008,000
Miscellaneous	4,325,339	4,325,339
Credit for Transit Police Services	-	-
Total Operating Expenses	267,976,155	267,976,155
Net Operating Revenue (Deficit)	5,715,242	5,715,242
Surplus from Previous Year	19,525,337	19,525,337
Surplus at Year End	25,231,429	25,231,429

* Includes reimbursement by The City of New York of differential between regular fares and reduced fares under school program. (1960: \$10,771,000; 1961: \$10,822,000; 1962: \$10,928,000; 1963: \$12,104,308)

† Includes \$135.00 net interest income on bond issue.

	1955	1956	1957	1958	1959	1960	1961	1962	1963
	\$	\$	\$	\$	\$	\$	\$	\$	\$
267	62,483	258,760	258,070	252,063	252,850	267,596*	270,689*	274,275*	274,276*
5	4,811	4,855	4,682	4,753	4,831	5,023	4,899	5,214	5,816
	—	—	—	—	—	4,583	5,000	5,000	5,000
	1,063	1,466	1,757	2,013	1,534	1,544	1,748	2,120	1,789†
273	<u>68,357</u>	<u>265,081</u>	<u>264,509</u>	<u>258,829</u>	<u>259,215</u>	<u>278,746</u>	<u>282,336</u>	<u>286,609</u>	<u>286,881</u>
183	88,220	188,646	187,449	193,374	196,631	195,886	204,247	212,210	221,221
21	18,915	16,678	16,359	15,451	15,304	14,088	13,825	15,295	19,961
	—	629	3,451	3,554	3,501	4,258	4,584	5,041	5,442
1	2,075	2,194	2,174	2,085	2,108	2,214	3,838	6,045	6,462
8	8,186	8,694	8,971	9,276	8,490	633	—	—	—
9	9,467	10,917	11,893	12,114	12,220	26,945	28,505	28,780	28,743
2	2,176	2,070	1,942	1,588	1,454	1,379	1,585	1,748	1,597
13	4,685	13,211	11,189	11,799	14,597	13,893	14,002	14,475	14,349
	731	736	744	710	658	712	699	636	617
4	3,971	4,161	5,070	5,358	5,818	6,173	6,025	5,908	6,000
15	8,000	7,682	5,881	6,059	—	—	—	—	—
4	5,539	4,671	4,996	6,989	8,681	8,252	7,618	7,801	7,687
	—	—	—	—	—	(3,250)	(7,180)	(7,878)	(8,910)
267	<u>51,965</u>	<u>260,289</u>	<u>260,119</u>	<u>268,357</u>	<u>269,462</u>	<u>271,183</u>	<u>277,748</u>	<u>290,061</u>	<u>303,169</u>
5	6,392	4,792	4,390	(9,528)	(10,247)	7,563	4,588	(3,452)	(16,288)
18	25,237	31,629	36,421	40,811	31,283	21,036	28,599	33,187	29,735
23	<u>31,629</u>	<u>36,421</u>	<u>40,811</u>	<u>31,283</u>	<u>21,036</u>	<u>28,599</u>	<u>33,187</u>	<u>29,735</u>	<u>13,447</u>

NEW YORK CITY TRANSIT AUTHORITY

Capital Fund Appropriations by Class of Work or Project

July 1, 1953 to June 30, 1963

CLASS OF WORK OR PROJECT	FISCAL YEAR	1953-1954	1954-1955	1955-1956	1956-1957
		\$	\$	\$	\$
Connection to Manhattan and Williamsburgh Bridges-6th Avenue Additional Tracks and Extensions to 57th Street.....		—	—		
Modernization of Signals.....		—	—	2,370,000	122,000
Station Improvements:					
Fluorescent Lighting.....		452,500	—	286,000	866,000
Elevators, Escalators, etc.....		—	—	209,000	295,600
Concrete Platforms, Elevated Stations.....		—	—	—	—
Platform Extensions.....		10,319,500	—	—	231,000
Nevins Street-Atlantic Avenue Improvements.....		—	—	—	—
Purchase of Cars.....		24,930,000	42,250,000	26,100,000	103,000
Modernization of Cars.....		272,000	—	—	—
Purchase of Work Train Rolling Stock.....		145,700	—	1,353,000	—
Purchase of Buses.....		—	—	6,635,000	765,000
Expansion of Facilities for 1964-1965 World's Fair.....		—	—	—	—
Express Station-59th Street and Lexington Avenue.....		—	—	—	478,600
Rehabilitation of Track and Contact Rail.....		235,000	712,500	1,950,000	983,500
DeKalb Avenue Reconstruction.....		—	—	14,512,000	136,900
Garages.....		—	195,750	—	140,000
Power Plant Modernization.....		5,162,500	7,714,500	30,201,000	524,800
Rehabilitation of LIRR Liberty Avenue Connection to the Rockaways.....		15,844,400	17,131,700	9,337,000	82,200
Fulton Street Extension.....		802,100	4,455,600	330,000	—
Rehabilitation of Culver Line.....		1,319,200	3,606,800	—	—
Queens Boulevard-60th Street Tunnel Connection.....		2,580,200	—	—	—
Modernization of Coney Island Shops and Yards.....		—	—	—	—
Miscellaneous.....		4,509,500	1,769,650	883,000	494,400
Total Contract Appropriations (Rounded).....		66,572,600	77,836,500	94,170,000	223,000
Engineering (T-1).....		5,000,000	4,650,000	6,900,000	959,500
Total Appropriations.....		71,572,600	82,486,500	101,070,000	182,500

	1956-1957	1957-1958	1958-1959	1959-1960	1960-1961	1961-1962	1962-1963	TOTAL APPROPRIATIONS (ROUNDED)
	\$	\$	\$	\$	\$	\$	\$	\$
1957	—	10,227,400	9,851,000	5,307,500	10,491,400	10,109,800	3,089,770	49,076,870
213	122,000	1,060,000	23,687,300	—	8,764,500	13,386,800	376,200	59,766,800
22	866,000	1,854,800	1,186,900	1,228,300	1,073,900	1,218,500	—	8,166,900
20	295,600	724,600	1,459,300	1,336,240	1,230,400	1,764,000	826,800	8,846,440
	—	—	—	427,600	1,178,400	698,000	615,400	2,919,400
	231,000	6,032,700	6,521,900	5,597,650	6,190,400	800,700	5,668,800	49,362,650
	—	—	—	—	—	3,090,400	—	3,090,400
26	103,000	—	11,996,100	39,913,700	39,538,000	86,100,000	51,000,000†	370,930,800
	—	—	1,860,200	728,000	1,008,350	—	770,510	4,639,060
138	—	196,800	—	—	—	569,700	—	2,265,700
60	765,000	2,962,000	4,998,000	8,235,000	3,510,000	4,700,000	9,500,000	45,305,000
	—	—	—	—	—	1,903,800	1,380,700	3,284,500
	478,600	—	—	6,381,200	658,700	—	—	7,518,500
	983,500	941,900	2,509,900	4,013,400	1,630,700	—	—	15,983,700
143	136,900	7,349,800	155,900	684,820	—	—	—	25,840,020
	140,000	171,000	2,023,900	—	—	—	609,900	3,140,550
30	524,800	4,027,500	—	—	—	—	—	82,630,900
9	82,200	—	—	—	—	—	—	42,395,800
33	—	—	—	—	—	—	—	5,588,300
	—	—	—	—	—	—	—	4,926,000
	—	—	—	—	—	—	—	2,580,200
	—	—	—	—	—	—	652,100	652,100
	494,400	1,437,500	2,804,400	3,011,290	1,365,750	2,232,300	1,344,280	20,852,170
	223,000	36,986,000	69,054,800	76,864,700	76,640,500	126,574,000	75,834,460	819,762,760
6	959,500	7,500,000	6,500,000	6,400,000	6,700,000	7,500,000	13,000,000	71,109,500
10	182,500	44,486,000	75,554,800	83,264,700	83,340,500	134,074,000	88,834,460	890,872,260

† Revenue bond issue for purchase of 424 cars.

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